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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1879 AND 1880.

SACRAMENTO:
H. A. WEAVER, BOOK AND JOB PRINTER.
1880.

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REPORT OF COMMITTEE ON PUBLICATION.

The Committee on Publication take pleasure in presenting to the members af the Medical Society of the State of California the Tenth Volume of its Proceedings, believing that the labors of both contributors and publishers have been conscientiously performed.

GERRARD G. TYRRELL, Chairman,
F. W. HATCH,
G. L. SIMMONS,
W. R. CLUNESS,
W. A. BRIGGS,
Members of Committee on Publication.

SACRAMENTO, July, 1880.

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THE TENTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

THE Tenth Annual Session of the Medical Society of the State of California convened at Covenant Hall, on Eddy Street, San Francisco, and was called to order at 11 A. M., April 21st, 1880, by the President, A. W. Saxe, M. D.

Dr. R. H. Plummer, Chairman of Committee on Arrangements, delivered the following address of welcome:

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The tide of Time in its annual flood has rolled in upon us and brings to us, upon its crest of "sparkling foam," our tenth annual meeting. It is greatly to be regretted that our enthusiasm is somewhat dampened this morning by the unpropitious state of the weather, rendering our attendance smaller than it otherwise would be. But being *creatures* of circumstances, as well as *creators*, it becomes necessary that we accept it as we find it. And as *good* frequently comes from a *seeming* evil, so do we expect that our present disappointment and inconvenience will be lost in the anticipation of the brighter future that is to follow—in the increase of mineral and cereal products.

My confreres upon your Committee of Arrangements desire to extend to you, through their Chairman, the right hand of fellowship, and bid you welcome!

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We welcome you again to this Hall, with its nicely carpeted floors, its easy chairs, its elevation above the noise and confusion of the street, and its elevator always at our command, and where, too, one year ago we held such a delightful meeting. We might have invited you to a larger and more fashionable hall in the business center of the city, with seats composed of long, hard benches sending forth their notes of discord and disapproval every time an occupant changes position; with bare floors better arranged for the pleasure of those who worship at the shrine of Terpsichore, sending forth the echoing footfalls of comers and goers, and where the acoustics, too, are quite as well adapted to such sounds and the rumbling of passing vehicles as to the voice of the reader or speaker! But the contrast is at once apparent without further delineation.

And then again the chord of memory draws us to this hall. It is a principle in the human heart to love to linger over the memory of happy moments, and to desire to live them over again. Here, to-day, old friendships are renewed and cemented, and new ones formed and cultivated. But in the hour of our gladness we remember also that we had sorrows.

Death, clad in the somber habiliments of woe, had then, as he has now, been stalking forth in our midst, and, with too unerring aim, had sent his shafts home, and we were left to mourn the vacant seats. And when the happy seance had ended, as all such events do, we were called upon to take the parting hand and to utter that word around which clusters so much sadness and sorrow, the word farewell! For, judging the future by the past, we well knew that for some it would be a long and a final farewell! But, as some one has said, "Hope springs eternal in the human breast," so we, ere the hand had scarce grown cold from the parting pressure, found ourselves forming schemes for this happy reunion.

And now, Mr. President and fellow members, we invite your attention to the labors we have laid out for you. There will be many valuable papers and subjects presented for your consideration. This is one of the most eventful periods for legitimate medicine that has ever occurred in the history of this State. Time-honored principles have been set aside for political clap-trap! The lights of art and science, that ages have been trimming to guide us and future generations in that search for the fount of eternal youth, have been disregarded, set aside—nay, placed under the bushel—and their places sought to be supplied by an eclectic light in a homeopathic dose.

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(See State Board of Health.) It has been attempted, during the recent session of the Legislature, to compel us again to learn to write prescriptions.

I will here take occasion to call the attention of the Society to an animal which has reared itself in our midst—a hydra-headed monster! The honorable Court recently declared that one of its heads had imbibed its erudition from an unsanctified source (ask Bancroft), whereupon that head was severed from the trunk; but the traditional caustic not having been applied, another head made its appearance, and the animal still lives in our sister city across the bay. I allude to an institution chartered under the laws of this State as the California Eclectic Medical College; which, by the way, recently applied to the honorable Court for permission to *drop* the word *Eclectic*, thereby endeavoring to identify itself in the public mind with the regular profession—throwing open its portals to all the quacks in the country, inviting them to come forward and be elevated to the proud position of "peer to any man" in medicine here, as far as any *legal* enactment can do it, your Board of Examiners to the contrary notwithstanding.

But I wander from the well-beaten paths into the by-ways, and, craving your pardon, will return.

To those of you who have taken this occasion to absent yourselves from your homes, to sacrifice your time and your business, who have traveled over weary miles of land and water to meet and mingle with us, to add your labors to ours in building up the common interests of our chosen profession, by preserving, through the records of our Society, whatever of interest and utility has been discovered or observed during the past year, we bid you welcome! "welcome to our city, to our homes, and to our hearts!" And when the labors of this literary feast shall have been finished, the San Francisco County Medical Society, seconded by the Society of German Physicians, invite you to a banquet—prepared under the supervision of a committee whose well known ability in that direction needs no eulogy from me—at the San Francisco Verein, No. 219 Sutter Street, between Kearny and Dupont, where it is hoped that the waste of tissue consequent upon the labors of this session will be somewhat repaired.

On motion, the address was referred to the Committee on Publication.

The Committee of Arrangements then reported the following mem-

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bers as present: A. W. Saxe, Santa Clara; R. H. Plummer, San Francisco; Lee O. Rodgers, San Francisco; A. G. Anthony, delegate from Alameda; T. B. DeWitt, South San Francisco; J. B. McMahan, Oakland; M. S. McMahan, delegate from Santa Clara Medical Society; Charles McQuesten, San Francisco; G. A. Shurtleff, Stockton; C. N. Ellinwood, San Francisco; G. G. Tyrrell, Sacramento; C. G. Kenyon, San Francisco; F. W. Todd, Stockton; C. P. Chesly, San Francisco; Washington Ayer, San Francisco; W. H. Mays, San Francisco; A. S. DuBois, San Leandro; George H. Jackson, Woodland; H. M. Fiske, San Francisco; L. M. F. Wanzer, San Francisco; F. H. Payne, delegate from Alameda Medical Society; M. K. Curran, San Francisco; H. S. Orme, Los Angeles; R. W. Murphy, San Francisco; W. H. A. Hodgden, San Francisco; R. K. Reid, Stockton; E. A. Stockton, Stockton; F. A. A. Belinge, San Francisco; H. St. George Hopkins, Oakland; Wm. M. Lawlor, delegate from Oakland; W. F. McNutt, San Francisco; J. E. Pelham, San Francisco; E. B. Robertson, San Francisco; G. J. Van Vlack, San Francisco; J. O. Hirschfelder, San Francisco; H. S. Baldwin, San Francisco; W. A. Grover, San Francisco; G. P. Reynolds, delegate from Alameda Medical Society; James F. Sullivan, San Francisco; B. D. Dean, San Francisco; W. L. Twichell, Alameda; G. J. Bucknall, San Francisco; L. H. Patty, delegate from Petaluma; L. Pawlicki, San Francisco; H. Gibbons, Sr., San Francisco; B. F. Hardy, San Francisco; C. E. Blake, San Francisco; C. M. Bates, San Francisco; M. C. O'Toole, San Francisco; M. M. Chipman, San Francisco; O. O. Burgess, San Francisco; G. M. Freeman, San Francisco; E. H. Woolsey, Oakland; James Murphy, San Francisco; Charlotte B. Brown, San Francisco; A. H. Agard, Oakland; S. W. Dennis, San Francisco; P. B. M. Miller, Oroville; J. L. Sargeant, Woodbridge; W. H. Bruner, San Francisco. Reported—J. H. Wythe, Oakland; R. Beverly Cole, San Francisco; M. A. Cachot, San Francisco; G. E. Reynolds, San Francisco; S. M. Tibbetts, San Francisco; A. Fine, San Francisco; W. A. Briggs, Sacramento; K. N. Post, San Francisco; W. M. Lawler, San Francisco; B. R. Swan, San Francisco; H. Gibbons, Jr., San Francisco; A. B. Stout, San Francisco; John Wagner, San Francisco; John Scott, San Francisco; L. L. Dorr, San Francisco; Theo. Green, San Francisco; Robert Caldwell, San Jose; C. A. Buckel, San Francisco; W. P. Gibbons, Alameda County; W. T. Wythe, Alameda County; Mrs. A. McG. Stuart, Santa Barbara;

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F. W. Hatch, Sacramento; — Hertell, San Joaquin; G. W. Davis, Chico.

On motion of Dr. Orme, the calling of the roll was dispensed with.

The Board of Censors, Dr. Ellinwood Chairman, reported the names of the following gentlemen as eligible to election to membership:

NAME.	SCHOOL.	DATE.
Wallace A. Briggs, Sacramento	University of Michigan	1871
Wm. M. Brown	University of Louisiana	1872
Wm. M. Lawlor, Oakland	Albany Medical College	1867
L. W. Patty, Petaluma	St. Louis Medical College	1877
Jacob L. Sargent, Woodbridge	Vermont Medical College	1846

On motion, the report was received and the gentlemen duly elected.

The following visitors being present were invited to seats on the floor: Wm. E. Briggs, Sacramento; Albert L. Adler, San Francisco; E. A. Clark, San Francisco; A. B. Stuart, Santa Barbara.

Dr. Saxe, President of the Society, then delivered the annual address, which was referred to the Committee on Publication.

The Board of Censors presented the case of Augustus Hirtel, who presented his certificate from the State Board of Examiners, testifying to his qualifications, but who had not his diploma with him.

Dr. Todd stated that Dr. Hirtel was a member of San Joaquin County Medical Society, and had, at the time of his admission, presented his diploma, and moved that he be elected to membership in the Society.

After some discussion as to the requirements of the Constitution upon the subject, which were adverse to his claim, Dr. Gibbons, Sr., stated that the evidences of Dr. Hirtel's graduation were so irrefragable that he hoped he would be unanimously elected.

The vote of the Society was thereupon taken, and he was so elected.

Secretary Tyrrell read the following communication from the Secretary of the Oregon State Homeopathic Society:

PORTLAND, Oregon, November 4th, 1879.

DR. G. G. TYRRELL—DEAR SIR: At the last session of the State Medical Society of California, a resolution was passed, giving its members "the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted," etc.

At the July session of the Oregon State Homeopathic Medical Society the Secretary was instructed to ascertain the precise construction intended to be placed upon the above words, in the matter of the

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attitude of the "regular" school towards the homeopaths. It has been generally understood that the regular physicians were not allowed to consult with homeopaths, or to give remedies on the homeopathic principle. The above words seem to indicate that in California this restriction has been removed. If so, we shall be glad to recognize the change. Will you, therefore, please inform me, at your convenience, what reply to give our Society. Respectfully,

O. B. BIRD, M. D.,
Secretary Oregon Homeopathic State Medical Society.

Which, on motion of Dr. Shurtleff, was laid on the table.

Dr. James Murphy, Chairman of Committee on Surgery, read his report, which, on motion, was referred to Committee on Publication.

The Board of Censors reported the name of Kate N. Post, San Francisco, (Medical College of Pacific, 1879,) as eligible to membership. She was duly elected.

On motion, the meeting adjourned.

AFTERNOON SESSION, APRIL 21ST, 1880.

The Society was called to order by the President at 2 P. M.

Dr. Gibbons, of Alameda, moved that the case of Dr. Boushey, laid over from last year, be referred to the Board of Censors. Carried.

Dr. Gibbons, of Alameda, moved that the paper which he would present upon Indigenous Botany be made the special order for tomorrow morning, which was carried.

Dr. Tyrrell moved that Dr. Kenyon, of San Francisco, and Dr. Briggs, of Sacramento, be appointed as Assistant Secretaries *pro tem.*, in absence of the regular Assistant Secretaries.

Dr. Oatman presented his report as Treasurer, and Dr. Ayer, Treasurer of the State Board of Examiners, presented his report, which, on motion, were referred to an Auditing Committee, consisting of Drs. Gibbons, Sr., H. S. Orme, and F. W. Todd.

Dr. Plummer, Secretary of the State Board of Examiners, presented his report, which, on motion, was referred to the Committee on Publication.

Dr. Tyrrell, in the absence of Dr. Oatman, Chairman, presented the report of the Committee on Medical Legislation. Referred to Committee on Publication.

Dr. Oatman presented the following amendment to the Constitution:

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The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.

Laid over under the rules.

Dr. Oatman proposed the following resolution: That the President appoint for the ensuing year a Special Committee on Medical Legislation, with instructions and powers contemplated in the proposed by-law on that subject. Carried.

The President appointed the following committee: I. E. Oatman, F. W. Todd, A. H. Agard.

M. M. Chipman, as Chairman, read his report on Public Hygiene and State Medicine, which was referred to the Committee on Publication.

President Saxe explained a misunderstanding which had arisen about the Chairmanship of the Committee on Mental Diseases.

On motion, Dr. Shurtleff was requested to make out such report and send it to the Committee on Publication.

An invitation was received from Mrs. A. L. Stone, President of the Women's and Children's Dispensary Hospital, San Francisco, to visit said Hospital. Received and accepted with thanks.

The Committee on Publication presented their report, which was received and accepted.

Vice-President F. W. Todd being called to the chair, President Saxe read the following short address upon the duties of members to the Society regarding their dues:

TO THE MEMBERS OF THE CALIFORNIA STATE MEDICAL SOCIETY—GENTLEMEN: The obvious objects of your organization are the furnishing greater facilities for communicating professional observations, interchange of sentiment upon medical and surgical topics, mutual acquaintance and protection, as well as sustaining the dignity and importance of the profession throughout the State. Your organization is admirably adapted to the development of facts relating to medicine and hygiene, in which every member of our population is interested, and by which they are constantly being educated.

In order to the proper working of this most excellent and indispensable organization a trifling sacrifice—a little self-denial—is necessary.

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Among the least of these requirements is the annual payment of *five dollars*. This trifling annual payment is regarded as necessary to the existence of the organization, and no member has thus far objected to the propriety or necessity of the demand. And yet many of our most worthy and excellent members so far forget their obligations as to neglect this prime factor in the existence of the organization.

The results of this neglect are, first, a serious hindrance to the free and best conditioned operation of the Society; second, great perplexity and annoyance in making appointments in filling the various standing committees; and, third, the appearance of partiality, and neglect of some of the most valuable and competent members of the Society.

This apparent neglect is, however, unavoidable, as those who fail to meet their societary obligations render themselves ineligible to official position. This condition of things is lamentable. The obligations and benefits are mutual, and the wider and more complete its scope the greater the influence of your Society. Every regular member of the profession in the State should be enrolled as a member of your Society, and every member should pay his dues. Then only can the most remote and obscure member claim the honor and protection of our most noble fraternity in California.

Dr. Gibbons, Sr., heartily indorsed the sentiments of the paper, urging in earnest terms the necessity of members fulfilling their obligations to the Society.

Dr. L. R. Webster, through the Secretary, presented his resignation as a member, owing to his inability to attend the meetings. Accepted.

Dr. Gibbons, Sr., moved that the amount offered for a prize essay be increased from fifty dollars to one hundred dollars. Carried.

Dr. Plummer moved the following resolutions:

Resolved, That it is desirable that there shall be a uniform system of examination for the degree of Doctor of Medicine apart from the institutions of teaching, so that the diploma shall be awarded to all competent candidates, and that the profession and society at large shall be secured against the possibility of the degree of Doctor of Medicine being conferred upon unworthy or incompetent individuals.

Resolved, That a committee of three be appointed by the President to prepare and present, before the close of this session, some plan by which said object can be accomplished.

The resolutions were adopted, and the following committee appointed: Drs. Mays, Gibbons, Sr., and A. H. Agard.

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Dr. E. B. Robertson exhibited a newly invented truss-pad with remarks, which, together with some reported cases of surgery, were referred to the Committee on Publication.

The Board of Censors reported William Lewitt, of San Francisco, (Jefferson Medical College, 1855,) as eligible to membership, and he was duly elected.

The minutes of the morning and afternoon sessions having been read and approved, the Society adjourned until 7:30 P. M.

EVENING SESSION, APRIL 21ST, 1880.

President Saxe in the chair.

Dr. Simpson read his report on Practical Medicine; also, supplementary reports by L. R. Webster, of Grass Valley, and E. B. Robertson, of San Francisco, which were referred to the Committee on Publication.

Dr. Thorne, Chairman, presented his report on Histology and Microscopy, with a supplementary report of Dr. J. H. Wythe, which were referred to the Committee on Publication.

Dr. W. H. Mays presented a paper on Gynecology.

Dr. John Scott, in some interesting remarks, criticised the paper, especially in reference to cervical laceration, and also in regard to Dr. Mays' deprecation of the use of pessaries.

On motion, the paper was referred to the Committee on Publication.

Dr. Tyrrell, Permanent Secretary, presented his resignation in the following terms:

MR. PRESIDENT, LADIES AND GENTLEMEN: Before the Nominating Committee to select officers for the ensuing year is appointed, I desire to place before this Society my resignation as its Permanent Secretary. Increasing duties and professional cares render this step absolutely necessary, not only for my own relief, but for the welfare of the Society.

It is now seven years since I was appointed to the responsible and honorable office of Permanent Secretary of this Society, and during that period I have endeavored to perform the duties assigned me with credit to myself, and for the highest interest and welfare of the Society. In doing this I have necessarily offended some, incurred the

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dislike of others, and have experienced the personal enmity of a few. This is the natural result common to all officials who are faithful to their trust. On the other hand, I am happy in the belief that the friends who appreciate the honest performance of a duty far outnumber my reputed enemies. In resigning this office now, I leave it when the spirit of peace, tranquillity, and brotherly love broods over the Society; when all its members, as far as known, are regular graduates in medicine; when the Society is out of debt; when its relations are established with every kindred Society in the United States, and when our transactions can be found in most of the regular medical societies in Europe. As long as there was a battle to be fought in behalf of legitimate medicine as against illegality and quackery of every sort, I remained your Secretary, to give assistance in conquering the common enemy. Now that the victory is won, and our Society has established itself as in every way legitimate and one worthy of our State, I beg most respectfully to tender my resignation and ask your acceptance of it in favor of a "younger if not a better soldier" than myself. Yours, respectfully,

GERRARD G. TYRRELL.

Dr. H. S. Orme, in moving the acceptance of Dr. Tyrrell's resignation, wished to express his high appreciation of Dr. Tyrrell's services, and hoped the Society would express, in a resolution, its sense of their value.

President Saxe also said that few are aware of the immense amount of work performed by the Permanent Secretary, and how well that work had been performed.

A vote being taken, Dr. Tyrrell's resignation was accepted.

Dr. Gibbons, Sr., offered the following resolution:

That the sincere thanks of this Society be returned to Dr. Tyrrell on the occasion of his resignation, for the faithful and efficient performance of his duties as Secretary of the Society from the date of its reorganization to the present time.

Carried unanimously.

Dr. O. O. Burgess presented his report on the Diseases of Women and Children, which, on motion, was referred to the Committee on Publication.

Dr. H. M. Fiske presented a paper upon the Efflorescences in Medicine. Referred to the Committee on Publication.

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Dr. Gibbons, Sr., offered the following resolution, which, on motion, was adopted:

Resolved, That the exemption of our State from epidemic small pox for a number of years renders it probable that a visitation of that pestilence is not far distant in the future; and, for this reason, and because also that the absence of small pox has led to the neglect of vaccination and the existence of a vast amount of material for the disease to feed on, this Society, therefore, urges the members of the profession throughout the State to press upon the people the necessity of enforcing vaccination as the only means of protection. Especially should all unprotected children, and other persons who have never been vaccinated, be speedily and carefully subjected to that process.

Dr. James Simpson, in rising to second the motion, would call the attention of the Society to the fact that, though the people depend upon the quarantine and health officers, they deny these departments the means of protection. The Legislature should make an appropriation for a quarantine ground. Dr. Simpson hopes the country physicians will impress upon their representatives the importance of measures to this end.

The minutes of the session having been read and adopted, the Society adjourned.

MORNING SESSION, APRIL 22D, 1880.

The Society convened at 10 minutes of 11 A. M., Dr. Saxe presiding.

The Committee on Nominations not being ready to report, and there being nothing before the house, Dr. R. W. Murphy called upon President Saxe to give some information in regard to the leprosy of the Hawaiian Islands.

Dr. Saxe stated there are 700 cases of leprosy on the island set apart for that purpose. Out of that number 400 die annually. The arrivals keep up the number. The people hide away victims of the disease from officers of the Government. The disease is non-infectious, but is inoculable in every way by which a disease can be inoculated. The disease develops first in the dermoid tissue; second, by proliferation in the sub-dermoid tissue. Many people escape from the island to this country and to Europe. Dr. Saxe believes there are numbers of cases of leprosy in San Francisco.

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Dr. Gibbons, Sr., asked the Doctor how many cases he had seen in California among white people.

Dr. Saxe said one.

The Nominating Committee presented the following report:

The Nominating Committee who were appointed to nominate officers for the ensuing year, beg leave to report the following names:

For President—F. W. Todd, of Stockton.

Vice Presidents—First, G. G. Tyrrell, of Sacramento; second, G. W. Davis, of Chico; third, A. H. Agard, of Oakland; fourth, C. A. Kirkpatrick, of San Mateo.

Permanent Secretary—Wallace A. Briggs, of Sacramento.

Assistant Secretaries—Thomas Ross, of Woodland; C. G. Kenyon, of San Francisco.

Treasurer—Ira E. Oatman, of Sacramento.

Board of Censors—O. O. Burgess, of San Francisco; B. R. Swan, of San Francisco; M. S. McMahan, of San Jose; Wm. M. Lawler, of Oakland; J. O. Hirschfelder, of San Francisco.

State Board of Examiners—C. M. Bates, of San Francisco; H. Gibbons, Jr., of San Francisco; C. Cushing, of San Francisco; R. H. Plummer, of San Francisco; James Simpson, of San Francisco; W. Ayer, of San Francisco; A. H. Agard, of Oakland.

Alternates—G. A. Shurtleff, of Stockton; H. N. Rucker, of Merced; Thomas Kelly, of San Jose.

Next place of meeting, San Francisco.

Resolved, That it is the sense of this committee that we request the San Francisco County Medical Society to forego the expense of the usual banquet; or, in case the banquet is decided upon, that the whole profession partaking thereof contribute thereto.

Unanimously adopted.

G. G. TYRRELL, Secretary.

Dr. Hatch read reports of the Special Committee on State Hospital for Consumptives. Referred to the Committee on Publication.

Dr. H. S. Orme moved that Article III, Section 4, of the Constitution and By-laws, be so changed as to read: "Section 4. The Permanent Secretary shall authenticate the proceedings," etc. (striking out the words "shall reside in Sacramento.") Laid over under the rules.

Dr. C. K. Farley read a paper upon the use of salicylic acid and salicylate of soda in fever.

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Dr. Plummer rose to a question of privilege, calling attention to a circular letter sent out by a member of this Society—Dr. A. S. Hudson, of Stockton. After reading the letter he claimed that no greater insult could be offered to this Society than this letter. He then moved that the name of Dr. A. S. Hudson be stricken from the roll of the Society. Carried.

Dr. C. A. Buckel, of Oakland, presented a fragment of a calculus removed by her, and read notes of the case as follows: The calculus of which this is a fragment was imbedded in the posterior wall of the bladder, just behind the neck, and measured about two inches in length and about one and one eighth inches in diameter, it being cylindrical in form. It was broken by Chassiere's lithotrite into three large pieces, which were of about the same diameter but of different lengths. The piece here exhibited is the one of medium size. It measures one and one eighth inches in its longest diameter and about five eighths of an inch in its shortest diameter, and was removed through the urethra, as was also the still larger fragment, without causing any abrasions or ulcerations even. The incontinence of urine, which had been distressing, was relieved the second day after its removal. Its chief interest, in the absence of the history of the case, is in the proof it gives of the dilatability of the female urethra.

The following gentlemen were named as delegates to the American Medical Association: F. W. Hatch, R. Beverly Cole, G. A. Shurtleff, G. G. Tyrrell, and H. S. Orme.

The Secretary was also authorized to issue credentials to any other member of the Society who might notify him of his intention of attending the Association.

Meeting then adjourned until 2 P. M.

AFTERNOON SESSION, APRIL 22D, 1880.

The Society was called to order by the President at 2 P. M.

Dr. Stout, Chairman of Committee on Necrology, read his report, which was referred to the Committee on Publication.

Dr. Clinton Cushing read a paper on "Laceration of the cervix uteri." Referred to Committee on Publication.

Dr. Simpson moved that this Society direct Dr. R. Beverly Cole to invite the American Medical Association to hold its next annual meeting on this coast. Carried.

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Dr. Tyrrell offered the following amendment to the Constitution:

Article V, Section 1 (on Standing Committees)—After that on Mental Diseases be added: On Gynæcology; on Diseases of Women and Children; on Opthalmology; on Necrology. And after Section 9 of same article, "that the duties of these committees be defined by a committee of three, appointed by the President for that purpose."

Laid over under the rules.

Dr. Thorne offered the following:

In view of promoting the largest attendance possible at the annual meetings of the California State Medical Society, and in view of the present inclemency of the weather in this month, and its probable recurrence at like periods in the future, thereby rendering attendance by country members difficult, if not impossible; be it

Resolved, Therefore, that the annual meetings of this Society shall hereafter be held on the second Tuesday of May, instead of April.

Laid over under the rules.

It was resolved that the Secretary be instructed to forward at once to the American Medical Association the resolution offered by Dr. Oatman, last year.

Dr. W. P. Gibbons read his report upon Indigenous Botany, which was referred to the Committee on Publication, and five hundred copies ordered printed in pamphlet form.

Dr. A. W. Saxe being compelled to go home, Dr. F. Walton Todd, of Stockton, who was our first Vice President, and President elect, was then conducted to the chair by Drs. W. Ayer and H. S. Orme—Dr. Ayer making a few appropriate remarks. After which Dr. Todd responded with the following:

I rise to express my thanks to yourselves, as well as to your Nominating Committee, for the compliment you have paid me in selecting me as your presiding officer for the ensuing year. It is a compliment of which any gentleman may be proud, and justly proud, to be chosen from so intelligent and respectable a body as its standard bearer; and my knowledge, by long association, of the respectable position you occupy, individually and collectively, makes me diffident in accepting the high office to which your partiality has called me, which my predecessors have filled with such distinguished ability.

But we have, as individuals and as a Society, duties to perform of a very responsible nature, for upon the graduates of regular medicine devolves the trust of confiding to fit successors the sacred repository of the wealth of learning of our noble profession. We have something more than honors to receive, we have work to do, for the science of

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medicine has become too broad to attain respectability in it without earnest, laborious effort; and we have but laid the foundation in this State, if, indeed, we have done so much, for the noble structure that must command the respect of the public. We must therefore see to it that those who take our places hold them by a higher tenure than mere successful charlatanry.

Not only this. The public must be educated; and who is there to teach it, if we do not, that the disciples of legitimate medicine alone are the repositories, the worthy repositories, of the knowledge of nearly three thousand years of devoted study, by some of the best minds, of the human system, in health and in disease?

It is with the hope that I shall be able to further these laudable objects that I accept this responsible trust, and I should be unwilling to assume it if I did not feel assured of your hearty co-operation.

With the pledge of untiring zeal and impartiality, and craving your indulgence for my shortcomings, I again thank you for the very high honor you have conferred upon me.

The Board of Censors reported the following applicants as eligible to membership:

NAME.	SCHOOL.	DATE.
James R. Laine, Sacramento	University of Buffalo	1876
Gerald J. Fitzgibbon, San Francisco	Medical College Pacific	1877
William E. Briggs, Sacramento	Wooster University, Ohio	1877
Alice Higgins, Anaheim	Medical College Pacific	1877
Anabel McG. Stuart, Santa Barbara	Medical College Pacific	1878
Chas. H. Steele, 2230 Mission St., S. F.	University City New York	1874
T. J. Le Tourneux, San Francisco	Medical College Pacific	1879

Report read and adopted.

On the application of Dr. Boushey, the Board reported as follows:

In the case of Dr. Julius Boushey, the Board of Censors, finding that he has been refused membership in the Alameda County Medical Association, respectfully report adversely to his admission in this Society.

San Francisco, April 22d, 1880.

C. N. ELLINWOOD,
C. A. KIRKPATRICK,
P. WHEELER,
CHAS. E. BLAKE,
Board of Censors.

On motion, the report was received.

Dr. Woolsey spoke against the report. He desired that the application of Dr. Boushey be investigated, and he called upon Dr. W. P. Gibbons to explain the matter.

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Dr. Cole spoke, sustaining the Board of Censors.

Dr. Ellinwood spoke of the case, explaining the rejection.

Dr. Simpson asked if the Constitution did not debar him.

Dr. Woolsey read from the Constitution, and made quite a lengthy speech, claiming that Dr. Boushey was wronged, and therefore he appeared in his defense.

Drs. Wm. Brown and Farley also spoke on the question.

A ballot having been taken, the report of the committee referring to Dr. Boushey was not accepted.

On motion of Dr. Cole, the case was referred to the Board of Censors, to report in one hour—upon the qualifications of Dr. Boushey.

Dr. W. H. Mays, Chairman of the Special Committee on State Board of Medical Examiners to grant the degree of Doctor of Medicine, offered his report.

Objection being made to the reading of the report, Dr. Plummer moved that the report be read.

Dr. Cole moved, as the report is irregular, that it be not heard.

Dr. Gibbons moved, as an amendment, that the report be deferred to next meeting. Carried.

Dr. Simpson moved a reconsideration.

The Chair decided the motion out of order.

Dr. O'Toole presented a pathological specimen of calcareous degeneration of the structure of the heart. Referred to the Publication Committee.

Also, exhibited a specimen of the heart of Dr. Tucker, deceased, who requested his heart to be exhibited.

Dr. J. H. Wythe exhibited a binocular microscope—"Zentmeyer's Grand Centennial Binocular"—and exhibited some specimens.

Dr. Hirschfelder read a paper upon localization of disease upon the cerebral surface, and gave some interesting experiments demonstrating this fact upon the living dog.

Dr. Wythe made some remarks upon the frequency of disease of the brain in California, and advocated the establishment of experts on pathology in insane asylums, to examine and photograph the brains of those dying of cerebral disease.

It was moved that a vote of thanks be tendered Dr. Hirschfelder for his experiments, and that his paper be referred to the Committee on Publication. Carried.

On motion of Dr. Farley in relation to the matter of Dr. Boushey, it was resolved that the Society become a Committee of the Whole to

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examine credentials and report; which, having been done, on motion, the committee rose and reported that Dr. Boushey's credentials were correct.

On motion, Dr. Boushey was elected a member of the Society.

The minutes being read and approved, the Society adjourned.

Evening Session, April 22d, 1880.

The Society convened at 7:30, President Todd in the chair.

A case of double congenital cortical cataract in a lady aged twenty years, right eye containing calcareous nucleus, was reported by Dr. M. C. O'Toole.

Dr. Dean, Chairman of the Committee on Obstetrics, not being present, Dr. Plummer moved that the Doctor be instructed to forward his report to the Publication Committee.

Dr. M. M. Chipman moved that Dr. J. F. Montgomery's paper on Water Supply and Sewerage be referred to the Committee on Publication. Carried.

Dr. A. Martinache, Chairman of the Committee on Opthalmology, presented and read a paper on this subject. Referred to the Publication Committee.

Dr. W. E. Briggs presented a paper entitled, "A Case of Retinal Hemorrhage from Intermittent Fever." Referred to Committee on Publication.

Dr. Ellinwood moved that a committee of three be appointed, to report to this Society at its next meeting, on the character, objects, and utility of the United States Marine Hospital service, including its relations to commerce, to the medical profession, and to the public. Carried, and the following committee appointed: C. N. Ellinwood, L. C. Lane, M. M. Chipman.

The Board of Censors reported Dr. Fifield, of Madison, Yolo County, (Medical College of Pacific, 1876,) as eligible to membership, and he was thereupon elected.

Dr. R. W. Murphy's paper on The Use of Chloral Hydrate, and Dr. Joseph F. Sullivan's paper on a New Pocket Forceps, were referred to the Committee on Publication.

On motion, the dues of the Secretary and Assistant Secretaries were remitted.

On motion, a vote of thanks was tendered the retiring officers.

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Dr. Gibbons, Sr., Chairman of the Auditing Committee, reported that the Treasurer's report and the report of the Secretary of the State Board of Examiners were correct. Report received and ordered on file.

President Todd stated that he had been authorized by a member of the Society to offer fifty dollars, in addition to the one hundred already voted by the Society, for a prize essay.

Dr. Cole said that the name of the member was not unknown to him, but the President was too modest to mention it. He therefore took pleasure in informing the Society that this member was Dr. Todd himself.

Dr. Gibbons, Sr., offered the following resolution, which was adopted, and the Secretary was instructed to send a copy of the same to O. B. Bird, Secretary of the Homeopathic Society of Oregon, in answer to his letter to this Society:

Resolved, That in the resolution adopted last year by this Society, recognizing the right of its members to "use any remedy or any means whereby the welfare of the sick may be promoted," no new doctrine or principle of action was enunciated; that regular medicine prohibits no remedy or rational method of treatment; that it regards as irregular those practitioners and sects which act on some exclusive dogma, or employ certain remedies or methods to the exclusion of other means; that our refusal to consult with irregular practitioners is not founded on jealousy or personal motives, but we refuse because such consultations would not only be devoid of benefit to the patient, but would be an indorsement and a sanction of what we regard as delusive and dangerous error in doctrine and practice.

Dr. J. W. Blake presented a specimen of hypertrophy of the prostate, producing occlusion of the urethra, which required aspiration for relief of the bladder.

Dr. Gibbons, Sr., presented a paper on the danger from small pox and leprosy in California. Referred to the Committee on Publication.

The minutes were adopted, and, on motion, the Society adjourned.

GERRARD G. TYRRELL,
Permanent Secretary.

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ANNUAL ADDRESS

DELIVERED BEFORE THE

CALIFORNIA STATE MEDICAL SOCIETY,

AT SAN FRANCISCO, APRIL 21ST, 1880.

BY A. M. SAXE, M. D.

LADIES AND GENTLEMEN OF THE CALIFORNIA STATE MEDICAL SOCIETY: In conformity to the requirements of the Constitution and By-laws of your organization, I have the honor of appearing before you, as Chairman of your Association, to offer you the customary Annual Address, with such suggestions and recommendations as may appear of sufficient importance to claim your attention.

As a Society, you are to be congratulated upon the harmony which has prevailed in your councils. Your efforts at elevating the standing of our profession on the Pacific Coast have not only been laudable, but to an encouraging degree successful; and your efforts in obtaining from the State Legislature an acknowledgment of your thorough respectability and public necessity, are referred to by kindred associations throughout our nation with approbation.

There is much yet to be accomplished before the conscientious practitioner of rational medicine can receive the full measure of respect to which he feels himself justly entitled, and from past experience we must infer that our only safety is in a constant assertion of our rights, and an unrelenting warfare upon all opposing influences. Our relations to the entire universe are such as to compel sentiments of humility and self-abnegation. Year after year we are hurled through space; traversing the circuit of the earth's orbit, days and seasons have come and gone; we have been the sport of ever-varying natural phenomena, and by the operation of the mysterious law of

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gravity have returned to nearly the same regions of space we occupied one year ago. Who of us has been consulted as to the operation of any one of the laws of the universe? Verily, we are as motes in the mind of the Great Architect. Yet, in our relations to the little planet we occupy, and the human beings who people it, we are of the utmost importance, and human wisdom is constantly in requisition for the purpose of averting national and individual human suffering. Natural laws, however beneficent, are remorseless in their operation; and the mysterious principle called life is beset with antagonisms, from its dawn to its extinction.

Bichat defined life as "the totality of those functions by which death is resisted." The mind is more forcibly impressed with the truth of the statement than its completeness as a definition. However, it affords one of those convenient axiomatic statements from which we may draw many of our most valuable philosophical inductions.

The physician is not a creator, but a conservator; and he only is worthy of the name who, by the greatest wisdom and skill, endeavors to protect and sustain the modicum of vitality, general and local, which, as a congenital endowment, his patient may possess. To this end, medical science has achieved the most wonderful results. The bare mention of surgical anæsthesia, hypodermic use of remedies, disinfectant treatment of surgical disease, the accumulated knowledge of the natural history of disease, and the inestimable value of therapeutic observation during the last fifty years, together with the rapid strides now being made in all departments of medical scientific observation, should give us all a glow of honest pride in being members of such a profession.

The vital forces may be considered a unit—a pre-natal endowment which resists death for a greater or less space of time. The function of the physician and surgeon is that of taking cognizance of any aberration in these forces, local or general, and removing impediments to their free and best conditioned operation.

For many centuries the history of medicine was made up of detached items of human experience, and not until the last century have the natural sciences been availed of to any important extent. The accumulated knowledge of the past centuries, added to the overwhelming blaze of scientific discovery during the last fifty years, has placed rational medicine in the front rank of modern sciences. The practice of medicine is an art; but it is inseparable from an intimate

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knowledge of medical science, and we pay little heed to the most brilliant natural endowments in the practice of medicine and surgery if unaccompanied with thorough scientific training. To this end, medical education has become almost unlimited in its scope, and so exacting are the requirements of modern civilization that the tendency is toward specialties and departments of the great body of medical science. The medical student of to-day is confronted with a mass of erudition and skillful manipulation, necessary to the successful practice of medicine and surgery, which might well appal the stoutest heart.* And the medical world is submitting as gracefully as possible (but not without many misgivings) to this subdivision and separation of its functions. The various departments of human knowledge are extending and widening so rapidly, from day to day, that the question of time and mental possibilities must enter largely into our estimates in organizing the curriculums of our medical colleges.

The propriety of insisting upon a knowledge of the classics is doubted by many, who consider the time necessary for its acquisition too great for the advantages it affords. There is, however, a very important view of the matter, to which we may do well to give heed. The nomenclature of science is mostly descriptive, and is intended to convey definite ideas. To one unacquainted with the language, the name or term conveys nothing but an abstract sound, and ideas are acquired only by association while taxing the memory with them; while to one having a knowledge of the languages these words and terms are full of significance, and do not burden the memory perceptibly, so that in the pursuit of knowledge the labor is infinitely lightened by this preliminary classical training. It is also a matter of common observation that our only excellent writers and speakers of the language of science are those who, early in life, acquired a knowledge of the classics. Who has not witnessed the pitiable efforts of even good minds to express themselves in respectable scientific language? And we must infer that a self-consciousness of this inability is one of the chief reasons for the reluctance of respectable and competent medical men to make reports of most interesting phenomena observed by them. Having once felt the merciless thrusts of literary and scientific criticism, the observer is content with making stray notes, and abandons the field to perhaps less philosophical, but better educated, minds.

*NOTE.—"Intemperance in Study," by D. Huck Tuke, read at the annual meeting of the British Medical Association. Reprinted in *Popular Science Monthly*, March, 1880.

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The confidence and courage secured by a knowledge of the Latin and Greek—the languages of scientific nomenclature—are of incalculable value. And it may be said that few men, however brilliant their endowments or great their acquirements, attain the eminence due them without a preliminary classical training. The habit of careful observation and methodical record of phenomena in medical and surgical practice cannot be too highly commended nor too assiduously cultivated. The rational inductions of medical science, those upon which the practice of medicine and surgery are based, have been derived from the written experiences and observations of medical men from the remote past to the present. And opportunities for observations, new and invaluable, are as plenty now as heretofore, and even more abundant.

The annual aggregate of medical graduates in the United States is said to be greatly in excess of the needs of our population. It may be doubted if this is true. We are familiar with the doctrine of "the survival of the fittest" as a factor in the production and modification of species, and general adaptation of animal and vegetable life to its environment. Our medical teachers, however great their knowledge and ability to instruct, cannot make physicians and surgeons. They can only educate such candidates as present themselves. And as human mental capacity and skill are limited and unequally distributed, so we cannot know in advance which shall prosper, this or that. And the result is reached by the candidates themselves in a few years more justly and certainly than by any preconcerted selection and rejection of candidates by medical colleges. Ample and equal privileges to all is the only course to be pursued. There is, however, a growing conviction among thoughtful medical minds that no medical college, school, or university should be allowed the power to grant diplomas or universal charters for the practice of medicine. That this power should exist only in National Boards of Examiners having stated periods of session at the commercial centers of such States as have medical colleges, and at such times as to accommodate classes of candidates without too great inconvenience of travel and expense. And that such examinations should be as thorough and faithful as those of examining boards of the army and navy. The advantages claimed for the above plan are that, whatever theory of medical practice may be adopted, the patient and the community at large may be assured that human life and health are not to be the sport of ignorance, stupidity, and cupidity.

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The early conditions of pioneer frontier life, with scarcity of medical ability and skill, can no longer be made an excuse for medical and surgical incompetence.

The subject of medical expert testimony, and its just remuneration before our Courts of justice, is engaging the attention of the profession throughout the nation. There can be no question as to the duty of all citizens to respond to summons of Courts, and testify as to matters of fact within their knowledge. It is the common duty of citizenship. Thus far there can be no diversity of sentiment. But the question is, whether a physician may be compelled to give a professional opinion, the value of which depends upon his fund of acquired scientific knowledge, the result of years of constant mental application and the expenditure of thousands of dollars, for the mileage and per diem allowed by our codes for witnesses in simple commercial and social matters of fact.

The members of the legal profession are careful to have their fees secured to them in advance of the rendering of their opinions, and the demand is proportionate to the magnitude or cash value of the interests involved. Neither the legal profession nor its clientage object to the justice or propriety of this custom. And there can be no reason, in the nature of things, why the learned physician and surgeon should not be paid in proportion to the value of his services in legal contests.

During a recent visit to the Hawaiian Islands I ascertained the following facts in regard to the local management of leprosy *(Elephantiasis Græcorum)*, a disease which threatens to destroy the entire Hawaiian race. The Government has undertaken—with commendable zeal, and at enormous expense—by isolation of all discoverable cases to stamp out the disease. This effort was inaugurated in 1864. Its annual cost has been fifty thousand dollars, or nearly one twelfth of the entire revenues of the kingdom. It is one of those heroic efforts which should enlist the sympathies and excite the admiration of all civilized nations.

It is not my purpose to enter into statistical details of the disease in that interesting group of islands—however valuable these might be for your future consideration—but to call your attention to some incidental facts which are of vital importance to the welfare of our State.

The very salutary laws enacted by the Hawaiian Legislature have been very faithfully executed, so far as the native population is con-

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cerned, but, unfortunately, the disease often attacks white residents. These white lepers are allowed to emigrate to any part of the civilized world they may select. The result is that many have gone to Oregon, California, the Eastern States, and Europe; some for special treatment, but mostly to escape recognition of the disease.

It is not necessary to state to the well informed physician that the disease is not infectious, nor is it contagious by most of the modes, nor to the same degree, as variola, or other exanthematous diseases. But there is no doubt as to its inoculability and hereditary transmission through either parent, and there is a prevalent opinion among the best informed physicians who are familiar with the disease, that it may be communicated by contact with clothing, or apartments occupied by lepers. Also, that it is incurable; that the period of incubation and development may occupy many years, during which period only an expert can detect its presence; and that it is at all times communicable by the above methods. The above facts, pertaining to State and National hygiene, are thought to be sufficiently important to deserve your careful consideration.

With one exception there is little diversity in the public estimate of the value and necessity of our public and private charities. To this exception—foundling and lying-in hospitals—your attention is respectfully invited. Many estimable people regard these institutions as affording special facilities for the concealment of societary misdemeanors and mitigation of their punishment; that they undermine chastity and cheapen female virtue; holding that these delinquents should suffer all the privations and indignities their virtuous neighbors may see fit to heap upon them; and that the unfortunate offspring of these societary infractions should suffer social ostracism, and be branded with the mark of Cain. It is unnecessary to inquire who and what dishonors the unfortunate mother and what agency the child has in its summary expulsion from the social Eden enjoyed by virtuous people. These social irregularities occupy a debatable relation to abstract morals, and may be classed as infractions of social order by natural law, and the fact of their universal possibility should soften and minify the verdict of a Christian people. It may be confidently asserted that these charitable institutions have no agency in producing beneficiaries. The percentage of these society irregularities is a very constant quantity in all communities, whether savage or civilized; and the number in any decade, in any nation, may be predicted with all the precision of the advent of a solar eclipse; the only

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question being, Shall the suffering consequent upon these inevitable human errors be mitigated, and human life protected? The immaculate societary Pharisee is respectfully invited to "cast the first stone" at these unfortunates and their charitable friends. But there is no uncertain sound in the injunctions to feed the hungry, clothe the naked, heal the sick, soothe the sorrowing, and cast over human frailty the broad mantle of charity, having the Divine assurance that "inasmuch as it is done unto one of these little ones" it is done unto the great human exemplar and Father of us all.

A matter pertaining to medical ethics has been brought conspicuously before the professional world, in the fact that a popular Scottish journal lately published a highly commendatory sketch of one of the most eminent Scotch surgeons. The medical journals of Britain and America have taken issue upon the propriety of such journalistic encomiums. There is no doubt of the wonderful skill and success of the great Scotch ovariotomist. And there would seem to be no impropriety in the spontaneous national eclat with which his name is everywhere greeted. This is a commendable national pride in her great men, similar to that of Greece and Rome, who honored their great men in life, and handed down their forms and lineaments to us in imperishable sculpture. Why should we of the nineteenth century be forbidden the expression of the noblest of the emotions, that of loving and admiring those who have attained excellence in their chosen life vocations, especially that of alleviating human suffering and prolonging valuable human life?

An eminent American divine thanked God for "the pleasure of loving and the luxury of being loved." We expect expressions of affection and gratitude from our clients. The pleasure of the practice of our profession consists much in these expressions. Why should we not expect it from the profession? If we do not, we acknowledge the domination of one of the worst elements of our nature. Should it be fostered or stamped out?

The little Island of Chios in the Egean Sea, already famous as the birthplace of the immortal Homer, and also for the excellence of its wines, produced two brothers, eminent sculptors. Their admiring countrymen caused this inscription to be engraved upon the pedestal of one of their masterpieces: "Thy sons, oh Chios, shall render thee yet more illustrious than thy vines."

California, our beloved State, already distinguished for her mineral and agricultural wealth, is yet young. But she has been richly

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endowed with men not less distinguished in medicine and surgery than the other liberal professions—the arts and commerce. May we not confidently look forward to the day, not far remote, when it may be said of her: "Thy sons, oh California, shall render thee yet more illustrious than thy mines?"

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REPORT ON PRACTICAL MEDICINE.

BY JAMES SIMPSON, M. D.

The wide range presented by the whole field of practical medicine will preclude me from attempting a full report of the advances made in this department. The task would be herculean, and my remarks will, therefore, be limited to what has struck me as new and progressive in the management of some half dozen of the diseases with which we are most familiar. It is not intended, however, that the term "new and progressive" shall convey the notion of any overturning of our tried and trusted methods of practice, but that a reflex may be given of some of the ideas constantly tossed to the surface in the prolific restlessness of our science.

PHTHISIS.

The doubt has been expressed by one high in the profession whether, with all our advancement in medical and collateral science, we combat disease with greater success than did our forefathers. In no disease does this doubt hold with more force than in phthisis pulmonalis. There is a tendency to empiricize on this disease which is much to be regretted. Professor Rokitansky, the younger, has astonished the world with the statement that the benzoate of soda, by inhalation, will cure consumption, and the demand for the drug rendered it for a time quite scarce and high-priced throughout Germany. This vaunting of marvelous curatives is not calculated to impress onlookers with the stability of our science. To many, the method of treating consumption, announced as the "Salisbury cure," is classed in the same category. This plan of treatment—for which Dr. Salisbury claims the most satisfying results—is based on the supposition that the disease arises from the fermentative processes set up by improper food; and the cure, based on this theory, consists of a carefully prescribed diet, chiefly of meats, together with the rigid observance of

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hygienic rules, bathing, etc. The hereditary nature of tuberculosis is not admitted in this scheme, except as an influence producing a feebleness favorable to the invasion of the disease, the onus of its development being laid at the door of defective digestion and assimilation, bad air, improper food, etc. The existence of a distinct pre-tubercular stage is particularly insisted on, when proper treatment and diet may avert the disease. Now, although Dr. Salisbury's doctrine may seem to many of us untenable, the fact that it keeps open the question of the curability of consumption goes a long way in its favor. It has been too much the fashion to label consumption "incurable" and leave it there. Hereditary tendency has grown to be regarded as an enemy it is useless to fight. It is therefore a matter of congratulation to find that modern writers and teachers unanimously recognize a preliminary stage of consumption, dating far back of the first appearance of tubercular deposit. During this stage forces are at work—whether they be exposure, deficient food, nervous strain, or irregular habits—disturbing the nutritive functions, deteriorating the blood, and lowering the powers of vital resistance long before the advent of tuberculization.

SCARLET FEVER.

A larger dose of quinine than is usually given has been found of benefit here. To a child of four years, laboring under high fever and delirium, as much as twenty grains in twelve hours should be administered. And for two or three days after the amount should not be less than twenty-four grains per day. Jaborandi—or its derivative, pilocarpine—has been tried very thoroughly in this disease, for which its powers of elimination seem eminently adapted. Cautiously used, its effects in lowering pyrexia become well marked as soon as its action on the emunctories is established. Oiling the whole surface of the body is a palliative measure, which should not be forgotten. Gargles are condemned, but instead the atomizer, with disinfectants, can be used to advantage.

TYPHOID FEVER.

It seems that there is still something to unlearn as well as to learn in the treatment of this fever. Sir William Jenner, in a recent clinical lecture, says: "More lives may be saved by the judicious treatment, and more lives lost by the improper treatment, of typhoid fever than of any other disease." He believes that "little else is required, in a very large proportion of cases, than rest in bed, quiet-

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ude, fresh air, pure water, careful diet, and in the third week alcohol in the shape of wine." To those who believe only in the efficacy of unremitting dosing this may sound strange. He particularly views with disfavor the habit of routine administration of medicines, holding that when special symptoms point to the use of a certain drug its use should be discontinued when the gravity of the symptom for which it was prescribed has subsided. Professor Jacobi speaks well of the cold bath in typhoid of children, and uses as an antipyretic the neutral tannate of quinine, which possesses the great advantage of being easily administered. Alum, he holds, is the best hemostatic in hemorrhage from the bowels. In glancing at the different modes of treating this disease at the hospitals of the large cities, I notice first the increasing tendency to regard stimulants as merely a remedy to be used if certain ataxic symptoms are present, and not as a regular stand-by all through the fever. It seems also to be the impression that, while quinine is highly serviceable, large doses do more harm than good, by increasing the delirium and the gastric irritability, a belief to which I subscribe most cordially. And, strangest of all, I find a widening skepticism as to the indispensability of the oil of turpentine, a remedy which for fifty years has held undisputed sway in this country as the sheet-anchor in typhoid. The question as to whether turpentine possesses the power of dispelling meteorism is, it seems, again *sub judice*, many denying that it possesses that property. Dr. Jenner directs attention to a complication of typhoid fever not usually mentioned—spleen disorder. Tenderness in the left hypogastric region is, he says, often met with, due to enlargement of the spleen, one of the symptoms of most of the acute specific diseases. Tenderness of the spleen usually reaches its maximum in the third week, and is liable to be mistaken for local peritonitis. Hot fomentations over the organ are found of service in this condition. Bartholow advances a specific treatment for this disease, which is entitled to our careful consideration. It is the administration of iodine for the purpose of destroying the germs of typhoid. It is an application of the antiseptic principle to the "internal atmosphere," iodine having, as has been well ascertained, the power of destroying the disease germs in the discharges from the intestinal canal. Five drops of the tincture, or preferably of Lugol's solution, may be given three times a day. He also gives calomel in ten-grain doses for three or four days during the first week of the disease.

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LIVER DISORDERS.

Without flatly asserting that cases of consumption may originate from a disordered function of the liver, I am convinced that a faulty action of this important organ is the most fertile of the predisposing causes of that disease. The liver is, as Dr. Horace Dobell points out in an admirable paper on the subject, the great intercepter of oil, which it utilizes for the formation of bile. If, however, the functions of the liver are imperfectly performed, the accumulation of oil in the cells becomes a source of serious disturbance. The liver being loaded with more oil than it can manage to deal with, the hepatic cells become so distended therewith as to stop the secretion of bile, obstruct the portal circulation, and lead to the well known consequences of portal congestion—impaired appetite, depraved digestion and assimilation, gastro-intestinal catarrh, etc. In such a condition the use of cod liver oil but complicates the mischief and favors still further dyscrasia; pulmonary congestion follows and blood spitting; emaciation creeps on by slow and certain steps, and the rift widens, until consumption at length rears its hectic flag upon the citadel of life. To relieve the hepatic congestion and secure the normal outpour of bile, Dr. Dobell recommends small repeated doses of podophyllin, with chloride of ammonium and chlorate of potassa in addition, and the use of saline aperients. These means of depletion must not, however, be carried too far. The diet must be arranged by what he calls "dietetic maneuvers," that is, the cautious introduction of the hydro-carbons, carbo-hydrates, and albuminoids; and all food should be submitted to artificial pancreatization by the administration of pancreatine, which emulsifies the fats.

ACUTE RHEUMATISM.

Dr. Robert Bartholow has added to our knowledge of the therapeutics of this condition in an able clinical lecture. He sees a great source of error in treating the disease homogeneously, and recognizes three separate types of patients, each type requiring different treatment. They are, first, feeble, andemic, nervous subjects; to these he gives thirty minims of the tinct. ferri chlor. every four hours, wraps the joints in cotton, and, if they are very painful, applies small blisters around them. A laxative of Rochelle salt is given occasionally. These cases thus treated get well in two weeks, without

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heart complication. The second are the fat, flabby subjects, and they require the alkaline treatment, namely, two drachms of potassium carbonate every two hours until the urine ceases to be acid, when the amount may be much reduced, and after the fifth day quinine or iron added. This class are also supposed to get well within two weeks. The third class are vigorous subjects, often with hereditary tendency. These require salicylic acid in scruple doses to the extent of two, three, or four drachms in the twenty-four hours. It should be given in solution with an excess of alkali. This sometimes effects a cure in three or four days, but if it turns the stomach or depresses the heart it must be stopped. If, moreover, after three or four days, it produce no improvement, it should not be persisted in. Opium is to be avoided in either type of the disease. When an anodyne is necessary, atropia hypodermically near the affected joints will be found useful.

PNEUMONIA.

In the statistics of this disease collected by A. Brach in the three hospitals of Vienna, from 1866 to 1876, it is found that the lung most often affected is the right one, and that the mortality reached as high as one in four and a half. Dr. Handfield Jones has, in one of the London hospitals, used ergot to control the lung inflammation, but it has in the main disappointed his expectations. He relies on opium to allay the pain; digitalis, ammonia, and alcohol to strengthen the failing heart; effervescing salines, with or without a dose or two of calomel, to quiet gastric irritation, and, if hyperpyrexia become dangerous, quinine in large doses. Leyden, of Berlin, draws attention to the frequency, especially in the old, of retarded resolution due to weakness of the heart. This condition may last for months, or it may quickly terminate fatally from pressure of the exudation on the vessels of the diseased lung, for when this pressure becomes greater than the feeble heart can overcome, death of lung tissue or gangrene necessarily ensues. Here is pointed anew the moral of the later treatment of pneumonia—the treatment which, recognizing in heart failure the chief enemy to be dreaded, prefers to stimulate rather than to depress, to spur rather than to weaken, to support rather than to antiphlogize. This is not the expectant plan; it is a distinct course, pursued with a definite object in view. In France the use of depressing agents is still relied on. Bucquoi *(Gazette des Hopitaux)* claims that the favorite and most successful treatment in France is

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depletion by tartar emetic, followed by tonics after emesis has lowered the temperature sufficiently. According to the same writer the leading authorities of the French school believe that the removal of four hundred or five hundred grammes of blood, at the outset of the disease, will not in any degree lower the bodily strength.

To enumerate and describe all the newer remedies, and all the new applications of old remedies, would occupy too much of the time of the Society. Mention deserves to be made, however, of

Quebracho.—This is the bark of a tree of the cinchona group, indigenous to Peru. It is reported (I have not yet been able to procure it myself) to possess remarkable power in relieving certain forms of dyspuea. Under its use the cyanosis of impeded respiration quickly disappears, the lips and face regain their normal color, and the breathing is sensibly relieved. Its efficacy is most apparent in the dyspuea of pulmonary emphysema, of heart enlargement, and of bronchial catarrh. Dr. Birkart, of London, found in all these cases a teaspoonful of the fluid extract afford immediate relief; three minutes after its administration the pulse became somewhat fuller, the breathing easier, the face flushed and moistened with a gentle perspiration and slight drowsiness. After these symptoms subsided the breathing continued to be improved. It is to be hoped that further investigation will not disappoint our expectations of what promises to be a most invaluable remedy.

Picrotoxine.—This is the alkaloid of cocculus indicus, and has been found highly serviceable in the night-sweats of phthisis, by Dr. Murrell. It is given in doses of the 1-100 of a grain, in aqueous solution.

Thymol, obtained from the oil of thyme, has found its place as a useful antiseptic, although not equal to others now in use.

Our list of anti-diarrhea remedies has been enriched by an Asiatic product, *coto bark.*

The value of *codeia* as a remedy for phthisical and other coughs is sustained by the testimony of Bartholow and other authorities. The former ascribes the superior virtues of codeia to its selective action on the pneumogastric nerve, allaying irritability of its end organs. It is about one half the strength of morphia, and is less excitant, and less nauseant than that agent.

Anæsthetics.—The new anæsthetic bromide of ethyl, or *hydrobromic ether*, is acquiring considerable reputation for producing anæsthesia, with less tendency to induce vomiting than ether or chloroform. Affecting the system more rapidly and being more quickly

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eliminated, its after effects are less unpleasant. To Dr. Lawrence Turnbull and Dr. R. J. Levis, of Philadelphia, we are indebted for its introduction and careful reports upon its properties. It usually produces anæsthesia in two or three minutes—sometimes four; and consciousness returns in two or three minutes after its administration ceases. It is given (according to Turnbull and Levis) "on a handkerchief or small napkin folded up to a space of about four inches square, and then laid on a larger napkin folded so as to be large enough to cover the entire face of the patient." About two drachms are poured on the napkin to begin with, and a drachm is added afterwards at intervals, as required. Hydrobromic ether has been administered in Philadelphia as an anæsthetic about two hundred times, and it is greatly lauded by those who have used it. Dr. Levis expresses the conviction that it is practically the best anæsthetic known to the profession.

NITRO-GLYCERINE.

This drug has lately come into favor as a curative agent, and deserves some notice here. It is a transparent, colorless, oily fluid, slightly soluble in water and freely in alcohol and ether. It has a pungent taste. Taken in very small quantities it produces a fullness and violent pulsation in the head, a choking sensation about the throat, and severe headache, with nausea. The giddy feeling and headache often persist for some hours. No fatal cases of overdose are yet recorded. Its effects are much like those of nitrite of amyl. It is used as a remedy for neuralgia, in doses of a drop or two of a one per cent solution in alcohol. Cases have occurred of obstinate neuralgia in women yielding to a few doses of this remedy. Its value in tetanus chorea and sea-sickness is not yet fully determined. But as a remedy for anguia pectoris it is found of the utmost service, effecting, in many instances, not merely temporary relief, but a permanent cure. It is in regular use in some of the London hospitals in the treatment of the above mentioned diseases.

NON-ASYLUM TREATMENT OF THE INSANE.

Before closing my report, a few remarks may not be out of place relating to the war now being waged on lunatic asylums, both on this and on the other side of the Atlantic. Dr. W. A. Hammond, the Rupert of medical polemics, is leading the attack with his usual impetuosity. He advances the assertion that asylums are not cura-

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tive, but rather injurious and pernicious in their influences, and claims that ordinary cases of insanity, omitting the violent, should as legitimately fall to the care of the general practitioner as cases of heart or lung disease. He adduces proof of the existence of terrible abuses in the asylums of New York State, and says "it is only necessary to visit any large asylum to perceive that the therapeutics run in ruts which routine has cut, and that little or no effort is made to inquire into the normal cerebral organization of each particular patient, the character of his or her intellect, emotions and volitional powers, the existence or non-existence of disease in other parts of the body which may act as an exciting or predisposing cause of the cerebral disorder, etc. I feel, therefore, justified in making the assertion, and I do so with a full sense of its importance, that a general practitioner of good common sense, well grounded in the principles of medicine, with such a knowledge of the human mind and of cerebral physiology and pathology as can be obtained by study, and familiar with all the clinical factors in his patient's history, is more capable of treating successfully a case of insanity than the average asylum physician." Some powerful and caustic articles on the same subject have also appeared in the *British Medical Journal*, from the pen of Dr. Bucknell, editor of *Brain*, who describes the keeper of a lunatic asylum as "part physician, part hotel keeper, and part jailer." Admitting the truth of much that has been said by these gentlemen, the doubt still looms up strongly whether the abolition of the restraint of an asylum is either practicable or desirable. Certainly on this coast agitation on the question must be regarded as superfluous, for here the medical treatment of the insane is all that could be wished, the superintendents of our asylums men of unquestioned ability, and the management of their institutions a credit to the State.

SUPPLEMENTARY REPORT, BY L. R. WEBSTER, M. D.

Dr. L. R. Webster, of Grass Valley, California, submits a short communication on the value of counter-irritation and his method of employing it in the treatment of pulmonary disease. He thus writes: "Counter-irritation in various ways has been used by the medical profession for centuries past. During my professional life I have been called upon to treat a large number of patients suffering from lung trouble. I consider that it is almost indispensable to use counter-irritation as an adjunct to other curative measures. For

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some years past I have been using a simple instrument of my own invention, which I consider a great help in controlling disease of the lungs. The instrument consists of a cylinder, an inch and a half in length, and three quarters of an inch in diameter. Through the center of this, running lengthwise, is a small steel rod, projecting a short distance beyond the cylinder at each end. A piece of sole leather, filled with needles about one eighth of an inch apart, is stretched lightly around the cylinder, so that the needle points project a short distance. A convenient handle is so adjusted as to allow the cylinder filled or surrounded with needles to revolve. A little pressure upon the handle, combined with a forward movement, will enable the operator to run over a space of six or eight inches in a few seconds; and, although a very formidable looking instrument, yet the use of it causes but little inconvenience to the patient. I then take a mixture composed of glycerine and croton oil of equal parts, and apply by means of a camel's-hair brush. I have been able to remove very severe pain almost instantly in this way sometimes, and in all cases I have found benefit from its use. So far as I know, this plan is new to the profession, and I present it for what it is worth."

SUPPLEMENTARY, BY E. B. ROBERTSON, M. D.

SAN ANDREAS, (Calaveras County, Cal.,) January 14th, 1880.

JAMES SIMPSON, M. D.—DEAR DOCTOR: In response to your circular letter, asking a contribution for the Committee on Practical Medicine, I offer the following on intermittent fever, as observed by me in the foothills for some years past:

During the last session of the California State Medical Society—I write from memory—one gentleman advanced the theory that water, changed from its natural channel and used for irrigation, had proved productive of intermittents and other malarious fevers. Another member said, by way of reply, that such was a frequent result, but that, after having prevailed for a few years, the disease usually disappears, and the locality would become as healthy as before. I have seen sufficient examples to induce me to concur in the latter opinion.

I will offer you some illustrations. In the year 1854 the Mokelumne Hill and Campo Seco Canal and Mining Company completed their canal to Campo Seco, and constructed a reservoir which covered some twenty acres or more. The Town of Campo Seco is situated on either side of the ravine, something more than one mile

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west, on the same gorge and below the reservoir. The people in the village and its immediate vicinity built dams across the ravine, which were soon filled with slum; then, by manuring and cultivation, they raised fine vineyards, gardens, and orchards on the made land thus obtained.

In the Summer and Autumn of 1870 intermittent fever made its appearance for the first time; and then to 1873, inclusive, nearly every one who lived there suffered from the disease; those who did not were only exceptions to the rule. Since 1873 the disease has disappeared, or at most there has been only now and then an isolated case.

The above history may be repeated as to the line of the Calaveras River to the extent of twenty miles, viz: from immediately below San Andreas to Jenny Lind.

Near Beal's Ranch, nine miles eastwardly from Campo Seco, was a small reservoir some days full of dirty water, and others quite empty, with its slummy bottom exposed to the sun. Seventy-five or a hundred yards eastwardly from the margin of this reservoir was situated an Indian camp or village, with some twenty or thirty inhabitant aborigines, nearly all of whom were afflicted with intermittents durthe Autumn of 1872. I was called upon to treat those Indians, and advised them to move to a more healthy locality. Soon after their removal they all recovered. The next year—1873—they having returned to their old camp, again suffered in the same way; but since then the malaria seems to have exhausted itself, or at least those Indians have had no more of the disease.

TREATMENT.

The treatment most successful in my hands is to break up the paroxysms with calomel and quinine, and after that give the following until the sixty pills are all used, after which a relapse is not likely to occur:

Dr. Peck's anti-malarial pills, Visalia.—R. Strychniæ Crystal, Acidi Arseniosi aa gr. iii; Quiniæ Sulph., Ferri Redacti aa ʒiss; Mellis Despumat. q. s. M. ft. M. et. in pil. lx div. Sig. One pill after each meal.

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REPORT ON SURGERY.

BY JAMES MURPHY, M. D., CHAIRMAN OF THE COMMITTEE.

TO THE MEMBERS OF THE CALIFORNIA STATE MEDICAL SOCIETY—GENTLEMEN: The President of this Society having honored me by a request that I present to you a report on the Progress of Surgery during the past year, I realize that, in the fulfillment thereof, my path is strewn with almost insurmountable obstacles; for to classify and reduce to order the reports of societies for medical improvement, or to rehearse the history and result of operations which have transpired during the year, is a task of rare accomplishment; for many of these reports and histories had better sleep in the grave where silence would commit them together, perchance, with the subjects they treat upon.

In this most important branch of our art the subject of greatest interest has been to ascertain the best mode of preventing blood poisoning in wounds, whether brought about by accident or surgical interference.

I will here state that a rivalry of the most active kind has lately sprung up on this subject, first among individual surgeons, extending therefrom to institutions, and thence even to nations, each heralding its results, and each vieing with the other in the mighty struggle to save human life; and "still the strife goes bravely on," and we hope will so continue until the name of blood poison will be expunged from the list of surgical diseases, or, if ever met with, it can be as easily controlled by remedies as potent as those which are now used to defend the patient against this bane of our science.

By blood poison, we mean a matter capable of producing or promoting putrefaction.

To Lister belongs the honor of introducing the antiseptic mode of treatment, now most generally adopted; and, notwithstanding the splendid array of statistics and the responsible evidence brought forward in its favor, it has been accepted with great reluctance by leading surgeons.

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Lister's method is founded mostly on Pasteur and Kisber's theory—that putrefaction can only take place through the influence of minute organisms (the cocco-bacteria septica), in the same manner that yeast is produced by the yeast fungus, and that it is only necessary to exclude these organisms from the wound—or, in other words, to defend the patient from the possibility of these organisms coming in contact with a wounded surface, and at the same time establish drainage, when blood poisoning cannot possibly occur.

He prescribes certain rules during the operation and at subsequent dressings, all of which tend to destroy the bacteria which may come in contact with the wound, whether by the hands of the operator, instrument, sponges, dressings, or by atmospheric contact.

The operator and assistants are required to cleanse the hands thoroughly, and then wash them in a solution of about five per cent carbolic acid water; the skin over the part requiring interference is also washed, and during the operation a spray of two per cent solution of carbolic acid is thrown on the wounded surface—the rubber drainage tubes of Chassaignac are introduced, clipped off even with the surface, and all outward dressings carbolized and covered with a rubber shield.

Many leading surgeons throughout the world, however, have adopted an antiseptic mode of treatment, in a modified form, for the following reasons:

That it is not certain that the bacteria is as poisonous as represented, having been found in wounds treated by the Lister plan—absolutely closed to all communication with external air—and which, therefore, could have only reached that location through air inspired by the lungs; and, consequently, that the Lister plan affords no guarantee against the presence of bacteria.

That there is danger of poisoning by the continued and excessive use of carbolic acid, as recommended by Lister; and that it produces a form of dermatitis which is extremely annoying to the patient.

That other antiseptics are equally efficacious, less irritating and poisonous; that in scrupulous cleanliness, thorough drainage, and good ventilation, (enjoining upon all nurses and students who may be in attendance upon the patient the frequent washing of the hands, sponges, and all appliances used in surgical dressings,) far better results are claimed for this mode of treatment, and its advocates challenge the Listerians to compare statistics; and, while they do not accuse the Listerians with falsifying the records, it is broadly hinted

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that they pass by many cases of blood poisoning as we would a disreputable acquaintance whom we are loth to recognize.

I would further state that those who do not follow Lister do not condemn him, but, on the contrary, give him due credit for having brought about the splendid results obtained by both methods, and advise a thorough study of his *modus operandi*. But, as septic surgery is still in its infancy, it is to be hoped that a maturer age will place a halo around it which an adverse theory will never dim.

Those of you who have read Spencer Wells' writings on ovariotomy and his wonderful success in performing that formidable operation, where the tearing away of adhesions, the use of the actual cautery, the application of powerful styptics, and the removal of the omentum, have produced not only comparatively little constitutional disturbance, but rapid recovery, will wonder why abdominal section is not more frequently performed in the many cases which seem to demand it, and where death is sure to follow. I speak of wounds where there is hemorrhage within the abdominal cavity, intersusception, twisting, imprisonment of the intestines by adhesion, impaction, morbid growths, rupture, and other conditions which manipulation and medication had failed to relieve.

The real danger would seem to lie in not operating early and before the patient had passed into that moribund condition when, unfortunately, most of these operations have been performed, and which has brought them into bad repute.

Since antiseptic treatment is now generally used and the danger very much lessened, some of our leading surgeons advocate its early performance as a remedy in any condition requiring immediate surgical aid; and, viewed from a common sense standpoint, together with the evidence produced in its favor, we wonder that it was not sooner adopted.

Dr. Biglow, of Boston, during the past year has perfected an operation for the removal of urinary calculus, which I believe will supersede the operation of lithotomy. He names his operation Litholapaxy, and it has now been so thoroughly tested that it seems upon the eve of general adoption.

It differs little from the well-known operation of lithotrity, only in these particulars: The lithotrite is a great improvement on the one formerly in use; also, various sizes of canulæ for discharge of debris, which empties into a rubber or glass vessel in which a vacuum is formed; the crushing and evacuation is repeated until the entire mass is removed, which may be done at one or two sittings, and cal-

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culi of the largest size are removed, the patient being rarely confined to bed more than one week.

Of one hundred and seven cases operated on by various surgeons, but six deaths occurred, giving a mortality of one in eighteen cases. This is an excellent showing, as the fatal cases were old persons who were thoroughly broken down by renal diseases.

In lithotrity, concretions of one inch in diameter were seldom attacked, while in litholapaxy there is no limit which bars removal.

Cholecystotomy, or section of the gall bladder, is an operation now advocated in cases of impacted gall-stone, where death is almost certain.

A case is reported to the Royal Medical and Chirurgical Society, performed by Dr. Hanfield Jones, who advocates its more general performance. He removed a large impacted gall-stone, with successful result. Another case is recorded by Dr. Lawson Tait, of London, the patient being a female, where two large gall-stones were removed, one being impacted, the success of each operation being attributed to antiseptic treatment.

In gynæcology, removal of the uterus, hysterotomy (or hecterotomy as it is sometimes named) is an operation now advocated. It was first performed by Kimball, in 1853, and statistics upon its success were watched with a great deal of interest. It, however, gradually fell into disfavor, and its performance was pronounced professional murder by some of our leading surgeons.

This last year, however, a change of opinion has taken place in this regard. Since the introduction of antiseptic surgery, statistics have shown such a large number of recoveries as to justify the operation under certain circumstances.

M. Tillaux, of France, who recently presented to the Academy of Medicine a patient upon whom he had operated, gave certain conditions in which, in his opinion, the operation was justifiable, namely:

First—When the tumor causes intolerable pain.

Second—When the patient's life is threatened by obstinate hemorrhage.

Third—When the tumor presses upon a portion of the intestines, producing occlusion.

In Tillaux's case the ovaries were not removed.

M. Duplay collected fifty-five cases of the removal of the entire uterus, in which there were twenty-three recoveries and thirty-two deaths, giving a mortality of fifty-eight per cent. He performed the

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operation twice in the Hospital Saint Louis with fatal result. The antiseptic treatment was not used in his cases.

California has two successful cases to report, the operator being Dr. Lane, of this city.

Your reporter has had one case in his practice, which terminated fatally.

I have no doubt there is not a member of this Society who has not been often brought in contact with cases of great deformity, caused by un-united patella, or olecaranon process.

Since the introduction of antiseptic surgery has deprived the operation of opening joints of most of its terrors, wiring together the fractured ends of these bones is now resorted to quite frequently, and with good results.

Dr. Hector Cameron, of Glasgow, is said to have been the first to perform this operation on the patella, Lister having first successfully operated on the olecaranon.

Many successful cases are now reported, and it is urged to operate early and before the joints have assumed a condition which would only add to the dangers and difficulties of making a good result.

Esmarch, when he gave to the surgical world his bloodless method of operating, was, no doubt, unaware of the many uses to which his elastic bandage would be applied. Many cases are recorded during the last year wherein the use of this bandage has produced marvelous results.

I speak of aneurisms of the extremities—diseased conditions of the knee and ankle joints from injuries generally and of a chronic character—in acute inflammation in joints, where there is effusion, by controlling the flow of blood to the part.

It is also used to good advantage in nearly all pathological conditions of the joints—such as weakness, relaxation, pain on motion, and in diseases of the bursum-mucosæ, such as housemaid's knee. After removal of the fluid by aspiration, its success has been perfect.

In varicose diseases of the leg, when used properly and carefully, and when there are ulcerations connected therewith, it is said to produce a rapid and permanent cure.

In skin diseases of the extremities—such as ecthyma, elephantiasis, and psoriasis, etc.—it is said to effect a rapid cure.

In adenoid and fatty tumors of the breast, Dr. Bontuco, of New York, recorded several cases of arrest of growth and complete obliteration by its use.

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And I fear I would tire you were I to enumerate the various purposes to which this bandage is now applied, and the well attested success which has attended its judicious use.

Transfusion, of late, has been practiced but little, owing, no doubt, to the barren results obtained from an operation where so much was expected. No good reason was given why an operation, which in theory seemed certain of success, so often failed in practice. These failures were attributed to the complicated instruments generally in use for this purpose, and the confusion which attended such operations. Occasionally its failure was attributed to *shock*, and more rarely to septicæmia.

Since a number of recent recoveries are reported where transfusion seemed utterly hopeless, inquiry has established the fact that success was due mainly to a simple instrument, without valves, which carried the blood from the vessel of one individual directly to that of the other requiring transfusion, the operation being conducted on a thoroughly antiseptic plan, and which prevented the admission of poisonous germs into the circulation, and thereby assuring the success which theory had long wished for.

SUPPLEMENTARY REPORT ON SURGERY.

A CASE OF STRICTURE—EXTRAVASATION OF URINE.

By E. B. ROBERTSON, M. D., SAN ANDREAS.

Peter Schram, aged sixty years, of feeble health, was admitted, August 15th, 1879, to the Calaveras County Hospital. Upon examination he was found to be suffering from an immense swelling of the perieneal region, with great distension of the scrotum and penis, the result of extravasation of urine. He had not passed any urine during the preceding four days and nights.

The patient was placed on an operating table—not unlike that used, and I believe invented, by Dr. R. Beverly Cole—his hands were fastened to his ankles by means of a few turns of a roller, as for lithotomy; the perineaum brought near the end of the table, and a suitable seat placed where I could sit convenient to my work. I will digress to say that the only assistance was such non-professional aid as I could pick up around town, and hence no anæsthetic was used.

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A curved steel sound was introduced down the canal to, and held firmly against, the coarctation, by an assistant, who at the same time raised and held up the scrotum with his other hand.

The index finger of the left hand being placed in the rectum as a guide to the knife, an incision was made, commencing about one inch anterior to the margin of the anus, and continued along the raphe of the perinaenum to the base, or rather into the base, of the scrotum, which incision was cautiously deepened until the point of the sound was arrived at, which was about three fourths of an inch anterior to the bulbous portion of the urethra, opening several deposits of extravasated urine and pus. The canal was opened at a point near the coarctation by a longitudinal incision upon the sound, which was then slightly withdrawn, and a small silver director inserted, upon which the stricture was laid open. But the description is much easier than was the accomplishment. The stricture was found to be excessively hard, tortuous, or zigzag, and was nearly an inch in extent, and it was impossible to cause the director to follow the track except a very little at a time in one direction, then cut as far as advance was made, then try some other direction, and in this way about an hour's time was consumed; but patience and care, in operations of this kind, will accomplish much. Finally, having passed the obstruction, the director slipped into the bladder without difficulty, when a large quantity of urine escaped; then, by changing the small director for a larger one, and turning its groove upwards, it was an easy matter to pass a No. 12 gum catheter, which was retained for four days. At the end of four days several abscesses or collections had taken place in the scrotum, which were opened by free incisions; the catheter was removed and a new one supplied in its stead and retained two days, after which the canal was dilated occasionally with steel sounds.

The destruction and impairment of the perinaeal region by the extravasation of urine was considerable, as the parts united very slowly, and finally a fistulous opening of about the capacity of a small goose quill remained patulous in spite of all treatment, and through it a small quantity of urine passes during the act of micturition.

This is the tenth case in which I have operated for stricture by the perinaeal section, and the fourth in which extravasation had previously occurred, but the first wherein I have failed to secure perfect closure of the fistulous opening.

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REPORT ON HISTOLOGY AND MICROSCOPY.

BY W. S. THORNE, M. D., CHAIRMAN OF THE COMMITTEE.

The current literature upon normal and pathological Histology has been singularly meager during the past year. While it is true that the study of human histology must ever prove both interesting and profitable, still the subject which more immediately concerns the advancement of medical science and the welfare of our race, is the investigation of those morbid elements, whatsoever they are, that stand in the relation of immediate or proximate causes to disease. Von Humboldt has truthfully said that no subject presents more complex and difficult phases than the study of diseases in relation to their cause. Certainly there is nothing of greater practical importance than a knowledge of the essential nature of those subtile poisons which give rise to self-propagating or contagious diseases. By some the contagium is held to be a subtile poison, not recognizable by the senses, and that must forever remain unknown; by others it is held to be matter in a gaseous state, or as matter that may exist as a solid, a vapor, or in solution; while others have pronounced it an albuminoid substance, undergoing rapid chemical changes. These theories—for they are still within the domain of speculation—have borrowed color of probability from the fact that the *materies morbi* finds ready conveyance in the air, food, and water, as well as by the more direct medium of human intercourse.

Again, another corps of observers—among whom may be reckoned Budd, Tyndall, Beale, Pasteur, Schroeder, and Crookes—have demonstrated microscopically the existence of minute bodies in the air, atmospheric dust, and in the tissues of the body, both in health and disease, as well as in the atmosphere of malarious and insanitary localities. These minute bodies, some of them only visible by the highest powers, have been designated germs. *Germen* we find comes from *gerere*, to bear or produce; hence, the term can only be properly applied to something which lives and is capable of growth. And this

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is one of the essential characteristics of the so-called disease germs. They are believed to grow like other living matter of plants and animals; they may increase by division and subdivision, thus indefinitely producing their own kind; or, like the germs of the ovum, they may evolve higher types with special powers. A germ, therefore, is a living particle of matter, growing or capable of growth, and, excluding the idea of spontaneity, must have been derived from some pre-existing form of living matter. Disease germs are believed to be living particles of matter, possessing these characteristics—and, finding within the body suitable environment, they may increase and multiply indefinitely. By some, both contagious and malarial diseases are believed to depend upon certain species of low, simple, vegetable organisms of definite character, produced in the outside world, independent of animals or man, and by others that these germs have or do originate in man himself, and are to be regarded as degraded forms of living matter, by direct descent from a pre-existing living organism.

The vegetable germ theory has derived great plausibility from the fact that bacteria have been demonstrated in the blood, tissues, and secretions during morbid or diseased action, but its supporters are reported to have failed in their attempts to connect any constant form of bacteria with particular forms of contagious diseases. Dr. Obermier has demonstrated the existence of spirilla in the blood during the paroxysms of relapsing fever, and he shows that they disappear during the intervals. Salisbury has likewise been able to show the existence of bacteria in cases of malarial fevers. But it is argued that the minute germs, often less than the one hundred thousandth part of an inch, from which bacteria are developed, exist at all times and in the most healthful conditions, in all the tissues and fluids of the body; and that they only develop into the familiar form of bacteria when morbid processes have been set up, and the vitality of the body lowered, and that therefore bacteria are to be regarded as the result of diseased action, and not the cause of it. These minute germs are believed to gain access to wounds during surgical operations, and finding suitable lodgment they multiply and excite dangerous and even fatal inflammatory or septic action. Upon this theory Professor Lister has after much patient and careful observation systematized his peculiar surgical methods, which are believed capable of excluding or destroying these pernicious organisms. The theory that contagious diseases are caused by vegetable germs derived from some source independent of the animal organism, is opposed by many,

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notably by Dr. Beale, who has devoted much time and labor to this interesting subject. He holds with force and plausibility that the essential elements of contagium is living germinal matter derived from man or animals. That the contagious elements are particles of extreme minuteness, with difficulty seen with the highest powers. They are in reality microscopical portions of the tissues of diseased animals. They are given off in the breath, excretions, and in the various emanations of the body; and while so small as to be readily transmitted by the air, they are capable of indefinite vitality in high or low temperatures, and are potential when taken into the healthy organism of setting up precisely the same morbid action which existed in that form which they originated. These bioplasts are akin to pus corpuscles, in that they are capable of vital movement, and consist of degraded germinal matter derived from the bioplasm of the tissues. These germs are structureless, like a piece of mucus, and without definite shape, color, or consistence. They are analogous to those minute bodies observed in vaccine lymph which has been kept for some time in glass tubes. These particles are said to exhibit the most active molecular movement, and they have been proven to constitute the active portion of the lymph only. Similar germs have been observed in the contents of small pox vesicles; and Beale, Sanderson, and Crookes observed multitudes of these germs in the blood cerum, secretions of the mouth and intestines of animals affected with the cattle plague. And it was proven that these so called bioplasts were capable of propagating disease when inoculated into healthy animals. Each kind of contagious germ manifests its own specific action only. The germs of small pox will reproduce this disease, and so on, each contagion reproducing a condition similar to that which produced it. Disease bioplasts originating in the lower animals may find a fitting soil in man's organism, as witness the transmission of glanders from the horse to man. Contagious matter from purulent ophthalmia and gonorrhœa are believed to be transmitted long distances by the air, and yet retain its specific properties long after its removal from the surfaces where it originated. This mode of transmission of contagious diseases by minute particles of animal matter with vital potentialities finds analogy in the visible process of vaccination, and in the contagion of syphilis, gonorrhœa, purulent ophthalmia, glanders, and diphtheria. In contagious diseases we may reasonably believe that the breath and excretions contain imponderable germs of animal matter, endowed with properties

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which we call vital, *i. e.*, motion and the power of growth, together with the specific quality of exciting in the healthy body morbid processes precisely similar to that from which they emanated; and though identical in their elementary forms and properties, they may as transcendently differ in their powers as the germs of the ovum, which though microscopically and chemically alike are yet so widely different in their histogenetic qualities.

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REPORT OF COMMITTEE ON PUBLIC HYGIENE AND STATE MEDICINE.

BY M. M. CHIPMAN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE STATE MEDICAL SOCIETY: We have the satisfaction of looking back upon a year, since our last annual meeting, of more than average healthfulness for the State of California, having been favored with an almost entire exemption from epidemic disease, and the reports of deaths from the ordinary prevalent diseases of the different localities indicate as little mortality, in proportion to the population, as during any like period since the occupation of the State by the American people.

The reports of the State Board of Health for the year 1879 show a slight diminution in the death rate from diseases of the respiratory organs, as compared with the reports for 1878, and a more considerable diminution from diseases of zymotic origin. There were only ninety-three deaths from diphtheria in San Francisco during the year 1879, as against one hundred and ninety-two in 1878, and seventy-seven reported from other localities, as against one hundred and seventy-one for the year preceding.

San Francisco was exempt from epidemic disease during the year 1879, and the reports of the local Health Office show the aggregate deaths, from all causes, to have been 4,311 for the calendar year, as against 4,740 for the preceding year; and estimating the population for each year at 305,000, these figures give a total death rate for the year 1878 of 15.54 for each 1,000 of the population, and for the year 1879 of 14.13 per 1,000, which is a lower rate of mortality than has ever before been recorded since the incorporation of the city, and adds another evidence of the correctness of the claim that this is one of the most healthful of large commercial cities.

The following table exhibits the causes of mortality for the year by classes, and the large number of Mongolian deaths, of which the causes could not be ascertained:

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Zymotic diseases	626
Constitutional diseases	873
Local diseases	1,753
Developmental diseases	524
Violent deaths	237
Unascertained whites and colored	41
Unascertained Mongolians	257
Total deaths	4,311
Under five years of age	1,345
Seventy years of age and over	169

The violent deaths include homicides, suicides, and casualties.

After thorough investigation, I fully confirm the report of the committee of the Board of Health in reference to the Chinese quarter of San Francisco, and concur in the wisdom and justice of the ordinance declaring that quarter a public nuisance. Since the promulgation of the said order, by the peremptory direction of the Health Officer, efforts have been made towards cleaning up and disinfecting, but there are several localities within that section in which everything has been so long covered with dirt, and become so saturated with the emanations of accumulated and putrefying excrement, that it is only by the destruction of the present tenements, cleaning out the cesspools, and the application of disinfectants to the top soil, that the ground can be renovated and made wholesome sites again of human habitations.

A people so ignorant of sanitary laws, of such filthy and disgusting habits, so regardless and defiant of police regulations, and withal so totally oblivious of all moral principle, a people mostly of the lowest order of Chinese civilization, are unfit to have a dwelling place in the heart of a populous American city, and the city government should be empowered to assign them a location where their presence would be less obnoxious to the welfare and sanitary interests of the city, and none of that class should be allowed to live within the more populous districts except by special license of the city authorities.

Although the San Francisco Health Office inspection is, generally, pretty efficient, still the inspectors are not yet sufficiently impressed with the importance of looking closely after the condition of privy vaults and their position relative to wells supplying water for domestic uses, and there is a great deal of carelessness in the smaller towns and in the country districts concerning this same matter. Not only should the degree of porosity of the soil be taken into account, but as the underground flow of water is not unfrequently in a different direction from the surface flow, in case of sinking a well in the neigh-

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borhood of a cemetery, cesspool, privy vault, or other unwholesome deposit, the direction of the underground current should be definitely ascertained.

Repeating prescriptions without orders is a great evil, the tendency to foster the habitual use of opiates and chloral not being the least of the bad consequences, and the rendering of law which makes the prescription the property of the party who receives it is not in accordance with the design of the prescription and hurtful in its effect. The practice is in part the fault of physicians themselves, in giving verbal orders to repeat, and if they would always strictly adhere to the rule of not allowing prescriptions to be repeated except upon written orders it would lessen the practice, and by adding to the prescription, "This not to be repeated without written order," or the interdict printed upon prescription blanks, might change the legal status of the matter.

As a preventive of alcoholism and other disease developed from the same cause, I would suggest a law making the furnishing of intoxicating drinks to habitual drunkards a misdemeanor subject to penalty, and although the public sentiment of the State will not consent to radical restriction of the liquor traffic, this more conservative measure might meet with greater favor, and if adopted would be productive of beneficial results.

Concerning the three great epidemic diseases—Asiatic cholera, yellow fever, and small pox—as we are guaranteed future exemption from neither of them, I submit the following: In the Consular mortality reports of a large number of the most populous European cities there appear only seven deaths from cholera during the last season, and in neither case was the disease, probably, of the Asiatic type. At Bombay, in India, there were ninety-seven deaths from cholera during the first half of last year, and mortality from the same cause at Pondichery; all of which was probably of the genuine disease, as it is said to be endemic in some parts of that country. But our neighbors to the westward, fortunately, for the time, separated from us by a wide aqueous interspace of earth's surface, during the past year suffered severely from this deadly scourge. The disease was imported into Japan from China in the Summer of 1877, and there were from 14,000 to 15,000 cases during that season, with a mortality of about 50 per cent. The following Winter it pretty much disappeared, and there were but few cases during the year 1878, but in April of last year it became active again, and, spreading throughout the empire,

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continued its ravages during the entire season. Hon. J. A. Bingham reports, from Tokei, that from the commencement of the epidemic, in April, 1879, to December 27th, there were 168,344 persons attacked, with 101,364 deaths, 47,885 recoveries, and 19,095 remained under treatment at the date of the report.

Yellow fever, in the near future, will possess a much more immediate interest to the inhabitants of this State than it has heretofore, as the completion of the Southern Pacific Road will bring us much nearer to those cities which are exposed to its visits, and over a route much more liable to its transmission than the present route.

The Havana Yellow Fever Commission, consisting of three eminent medical men and one civil engineer, spent about four months' time, from July to November, on the Island of Cuba, investigating matters pertaining to that disease. They ascertained that yellow fever is endemic, and at times epidemic, at all the principal ports of the island, and especially at Havana, is every year epidemic, during the Summer season, and endemic the rest of the year. The sanitary condition of the several cities is very bad, particularly of Havana, rendered so by natural adverse circumstances, and the ignorance and indifference of the people in regard to such matters. The Commission estimate that in connection with water supply, sewerage, and other needed improvements, no less than twenty millions of dollars would be required to accomplish any decided sanitary improvement, in the City of Havana alone, and the people burdened by heavy taxes of the mother country, besides the support of their municipal and provincial governments, have no money to spare for such purposes. In fact the inhabitants and owners of the island are themselves better satisfied with the situation, in those respects, than are their commercial neighbors, for the germs of the disease, which is so deadly to the unacclimated, and pestilent in other cities, to the native born and acclimated are comparatively innocuous, and there is no other prospect but that the ports of Cuba will continue to harbor and to export, at times, the unwelcome guest to other countries, until by some unforeseen political convulsion or transfer the island may come under the control of a more enlightened and enterprising people. Small pox has made but a very small factor in the causation of mortality in the United States during the past year, the only epidemic of that disease having been at San Antonio, Texas, where it prevailed during the Summer and Autumn. That city in its population includes about six thousand Mexicans, who were opposed to vaccina-

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tion, and would not report, and even concealed cases from the knowledge of the authorities, and although their ignorance and obstinacy endangered the lives of many others, yet they were themselves by far the greatest sufferers, the result being 125 deaths, mostly of that class.

The last death from variola in California was reported at San Francisco January 2d, 1878. During the three Autumn months of 1879, the only mortality from small pox exhibited in the reports to the National Board of Health, of over one hundred of the largest cities of the United States, was one single death, at New York City, on November fifteenth, and it is confidently believed that the disease had no foothold in the country during that time, except at San Antonio. But on account of the superstitious fear of vaccination, among the French Canadians, small pox has for a long time found refuge in the eastern provinces, the deaths at Montreal alone from this cause having numbered 272 during the Fall and Winter months. And it was from that source that the disease was brought back into the United States, appearing at Philadelphia, and in the District of Columbia in December, and cropping out at Worcester in January. But this fresh importation was closely watched, and not allowed to spread abroad, and for the three several communities proper defensive measures being taken, the resulting mortality has been comparatively light. From December sixth, the date of the first report of mortality, to the third of April, there was an aggregate of 74 deaths reported at the three places named, and two at Chicago, making 76 deaths altogether, from this last manifestation. And, after closely scanning all reports, I find for the past year, from the 1st of April, 1879, to the 1st of April, 1880, that the mortality from this disease at all other places in the United States was not more than equal to the deaths from the epidemic at San Antonio, or not exceeding 250 deaths altogether, for our 45,000,000 of population.

From the consular reports we find about an equal exhibit of mortality from variola on the British Islands during the past year, as in the United States. There were about 100 deaths in London from this cause during six months ending January thirty-first, and the disease nowhere else reported on that island, except a few cases at Liverpool, and in Dublin the average weekly mortality was a little less than in London, and the disease nowhere else present except a few cases at Belfast.

On the continent of Europe variola has been somewhat more prev-

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alent, as out of forty-nine large cities, from which reports were received, twenty-four exhibit its presence, but not with sufficient virulence to add but little to the mortality of any of those places, except at the City of Paris, in which there were about one thousand deaths from this cause during the Fall and Winter months; and at Barcelona with a maximum of 23 deaths per week; and at Bucharest, in Roumania, where, with a population of about 206,000, the maximum mortality reached to 61 per week.

But crossing the Mediterranean into Northern Africa, we find that this same infection increased the mortality of the City of Tripoli during the Fall and Winter at the annual rate of 70 or 80 per 1,000, and accounts from Asia indicate that the old enemy is still at work there; but the reports are too meager to serve as criteria of the extent of its ravages in either of the two last named quarters of the globe. But turning to the south half of this continent, among the Spanish-American populations, we find there that the destroying virus has exhibited something of the old time energy, two notable examples being at Callao, Peru, where, with a population of 30,000, it caused 162 deaths during October, and at Valparaiso, Chile, where, with a population of 101,000, after several months' prevalence, the epidemic culminated in November, causing 678 deaths for that month, followed with 502 deaths during December and 347 in January.

This examination of the recent records shows that the ratio of the prevalence and fatality of the disease was very nearly in proportion to the degree of enlightenment and the completeness of the sanitary regulations of the countries and places mentioned, and by observing the entire exemption or very light mortality in those parts of the world where the specific preventive measure is most carefully attended to, remembering meanwhile the fearful epidemics which so frequently decimated the populations of those countries prior to the nineteenth century, and also taking into account the great mortality yet caused by this disease in those parts where vaccination is still disregarded or but partially practiced, will enable us to realize something of the inestimable boon conferred upon the world by Jenner's invaluable discovery. And this brief retrospect favors the supposition that this strictly infectious and contagious disease, this true cosmopolite, which respects neither race or color nor limit of latitude, altitude, or temperature, will continue to linger on the earth as long as there remain unenlightened nations for it to prey upon, and even when the more enlightened succeed in stamping it out from within their boundaries they know not

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the day when commercial intercourse may bring it among them again, and the only price of exemption from its attack is continued vigilance in carrying out a thorough system of vaccination by legalized authority, compulsory when necessary, and free to the poorer classes, to be performed in early childhood, and followed by re-vaccination at puberty, all of which to be made matters of record and public exhibit. And the instructing the less advanced nations in the utility of vaccination, the proper method of applying, and sources of supply, and perhaps at times furnishing the virus to them gratis, would be an enterprise in the interest of humanitarian principles, of universal application.

By an Act of Congress approved March 3d, 1879, was created a National Board of Health, consisting of seven members, appointed by the President, and one medical officer of the army, one of the navy, and one of the marine hospital service, and an officer of the department of justice; and by an Act approved June second, to this Board, in addition to its other duties, was assigned the regulation and management of the quarantine and sanitary affairs of our foreign commerce, with the privilege of having medical men connected with the consular offices at such foreign ports as most require intelligent medical inspection.

This organization makes inquiries and investigations, in regard to the causes of disease, the character, efficiency, and relative cost of disinfectants, and as to the most effective plans and comparative cost of sewerage, etc.; and furnishes information to any part of the country concerning sanitary matters; and co-operates with municipal and State Boards of Health in arresting and suppressing epidemic diseases; and its officers rendered important services in the yellow fever epidemic of last season, and by the introduction of improved quarantine and inspection regulations accomplished a great saving to the commerce of that section of the country, as against the old system of blockading the lines of freight and travel under similar circumstances, which services were highly appreciated by the States and municipalities most immediately concerned.

A movement is now in progress by the leading sanitarians and sanitary organizations of the country, to induce the Government to call an international conference for the discussion and arrangement of international sanitary and quarantine regulations, and all medical men throughout the country are requested by the National Board of Health to unite their influence in this behalf.

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At the close of the year 1879 there were seventeen State Boards of Health in active operation, besides five others, which either from failure of State appropriations or incompleteness of organization, had been unable, as yet, to get themselves into successful working order, and there is good prospect, at present, that some of the States yet without will soon by legislation add to the number.

The State Board of Illinois, in addition to its other duties, performs the functions which in this State pertain to the several Boards of Examiners, and in regulating the practice of medicine it has obliged the Eclectic College of Chicago to extend the time of its lecture term, and compelled 1,400 persons who had previously claimed to be doctors to either discontinue practice or leave the State. Midwives are now required, in that State, to pass an examination and procure a license.

Great Britain takes the lead of all nations in sanitary matters. Through the influence of the British Medical Association laws have been enacted from time to time, improvements effected, and regulations introduced, which have resulted in greatly reducing the death rates of her cities and public charity institutions and largely increasing the general prosperity of the country, and in the complete suppression of empiricism and irrational systems of medicine. This superiority, in these respects, as compared with the United States, is owing principally to the greater proportionate influence of the educated classes in their public affairs. But the equal participation of all classes makes it the more necessary that education should be encouraged and extended in this country, until a majority of the people shall be able to acquire an understanding of those matters which pertain to the public welfare.

Latterly, in the States to the eastward, efforts have been in progress to popularize hygiene by public lectures and publishing suitable articles for general reading, and Dr. J. S. Billings, in speaking of these measures in an address before the American Medical Association, said "that it was from the exploration of a Congressional Committee into, and the comments of the daily press upon, the causes of the yellow fever epidemic of 1878, that our National Legislature was induced to create a National Board of Health."

A very encouraging report has been made of an advance step in sanitary reform, in the formation of associations for private protective sanitation. This system of sanitary protection originated with Fleeming Jenkins, Professor of Engineering in the University of

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Edinburg, and the plan was first carried into effect in that city in 1878, and, from the original, was last year obtained and introduced into Newport, Rhode Island, by Dr. H. R. Storer, of the last named city. The objects are, by association, to secure a more complete sanitary arrangement, and to provide advice and supervision in the construction and improvement of dwellings for its members, and advice as to the best means of remedying defects in the dwellings of such of the poorer class as its members may be interested in, at less cost than could be obtained by independent individual effort, and to aid in improving the sanitary condition of the city. The Association is not intended as a substitute for, but to encourage and supplement, municipal inspection. At a recent election in that city officers were elected of the reform stamp of the new Association, and the Council of the Association, composed of both lay and medical members, are doing everything possible to extend a knowledge of the new principle, and numerous letters of inquiry show that the subject is attracting much interest.

In this State these matters are receiving but little attention outside the medical profession, and although California was one of the first of the States to follow the lead of the old Commonwealth, in which have originated so many beneficent measures, in instituting a State Board of Health, yet the authority and jurisdiction delegated the Board have been rather limited, and the appropriations stinted, considering the power for good of such an organization, if furnished with adequate means. I believe it is generally regretted by the profession of this State that preventive medicine is not more appreciated by the people, and there have been some really excellent articles read before the medical societies and published in the medical journals of the State, which, with perhaps a little modification, would make very profitable matter for general reading; yet there has been very little public effort made to instruct the people and popularize sanitary measures, and I here suggest that, if the members of the State Board of Health would deliver popular lectures, and if the State Society would appoint a committee, representing different parts of the State, to lecture upon these subjects, that their efforts, if not resulting in pecuniary gain, would be likely to reap a rich reward in the consciousness of benefiting the people and advancing the public interests.

But the most effective course to bring aid and add force to the movement of sanitary reform would be by more extensive and more thorough education in those branches of science, by means of which

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the nature and requirements of the human system are understood, and which form the basis of preventive medicine; and this might be done by encouraging the attendance at medical colleges, in addition to those intending to enter the profession, of others, who might attend with a view of acquiring a knowledge of anatomy, physiology, and chemistry only, or more especially of the two former branches, as chemistry might be studied elsewhere; and to this might be added, in case of persons desirous of engaging in scientific pursuits or sanitary investigations, a good knowledge of histology and microscopy. And instruction in anatomy and physiology should be made more extensive and thorough, by competent teachers in the schools; and by popularizing the study of comparative anatomy it might be made a very pleasant means of teaching the general principles of structure and function, and thereby largely increasing the amount of human knowledge in a most useful direction.

SUPPLEMENTARY REPORT ON PUBLIC HYGIENE AND STATE MEDICINE.

BY JOS. F. MONTGOMERY, M. D., OF SACRAMENTO.

THE IMPORTANCE OF PURE WATER AND AIR TO THE HEALTH OF INDIVIDUALS AND OF COMMUNITIES, AND THE MEANS BEST CALCULATED TO PRESERVE THEIR PURITY.

As my contribution to the report of the Committee on Public Hygiene and State Medicine, I propose to present some facts to show the importance of pure water and air to the health of individuals and of communities, and to offer some views on the plans or means best calculated to secure an ample and constant supply of the former, and to prevent the pollution or contamination of either.

Embraced within the scope of the great subject of State Preventive Medicine, no question of greater moment, or aim inspired by higher motive, can engage our attention, or command our earnest consideration, than the preservation of human health by guarding it well against the prolific causes of disease that lurk in the impurities of the elements prominently introduced in the title of this paper.

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In two several biennial reports of the California State Board of Health, I brought to the attention of the public the prevailing evil of the adulteration of food, drinks, (alcoholic, vinous, or fermented,) and drugs, and urged its prevention or suppression by the most stringent penal enactments and police regulations that could be framed or enforced; and now I bring forward the subject matter just stated as even more deserving thoughtful and determined action than the other, since it concerns more vitally a much larger number of persons, while the causes of the mischief or diseases traceable to the impurities alluded to are far more subtle and difficult of detection.

The zymotic diseases, which are also denominated preventable, are either epidemic, endemic, contagious, or sporadic, and are held to be produced by some morbific principle or germ acting on the organism similar to a ferment, and these morbific causes must enter the system by one or more of three avenues—by the digestive organs, in the food or potable water we consume; by the respiratory organs, in the air we inhale, or by inoculation upon the surface of the body, or through the mucous membranes lining the outlets. This being the case, we cannot be too vigilant in guarding well these avenues, and in scrutinizing and testing the character of everything that enters them, employing all the means that science can afford, or competent and faithful officers execute, to prevent the mischief that may be apprehended, and that it is the mission of the sanitarian to avert. Directly or indirectly these causes are estimated to be responsible for at least nine tenths of all the cases of fever, and probably for a larger percentage of zymotic diseases generally, prominent among which, besides typhoid or enteric fever and many other affections, may be mentioned diphtheria, cholera in all its forms, dysentery, diarrhœa, and erysipelas. That these and other diseases do arise mainly from agencies contained in impure water and air is so generally conceded that it would seem unnecessary to present here any proof of the fact; but to impress the truth of the assertion the more strongly upon the public mind, to the end that it may be the better appreciated, and that adequate action may be induced to provide effectually against a great prevailing evil, I will cite a few instances that seem well to illustrate and establish the opinion advanced.

I had prepared detailed accounts of various epidemic outbreaks of different diseases, to show clearly that they arose from the use of polluted water, or from poisonous gases entering or pervading houses from cesspools, sewers, or other impure sources; but to incorporate

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them into this paper would be to extend its length to an unreasonable degree, and to weary, probably, rather than to interest and intertain, the reader. I will, therefore, only state the occasions, and the results or conclusions arrived at, well attested and sustained after careful observation and consideration of the circumstances attending each case.

It is a disputed point whether typhoid fever, diphtheria, and some other zymotic diseases, arise spontaneously from filth. The affirmative of this question is very ably advocated by Dr. Thorne in a paper entitled "The Origin of Infection," read before the Epidemiological Society, and published in the *British Medical Journal* of June 8th, 1878, in which may be found all the arguments for and against the belief that a case of acute specific fever can arise independently of an antecedent case. After illustrating his arguments with typical instances which had occurred within his own knowledge, and giving the history of some investigations he had made into several outbreaks of diphtheria, he concluded in favor of the spontaneous character of some such acute diseases, by explaining that it is not at all a question of the development of a living organism out of matter independent of antecedent life, but merely the production by means of a process of evolution of that which gives to an already existing organism that property by which it becomes infectious—a property which it may perhaps lose directly it is deprived of the circumstances which favored its development.

But Dr. Thorne admits, as do others who agree with him in opinion on the disputed question at issue, that the matter is still *sub judice;* and while he and they hold to the views expressed in his paper quoted from, they do not deny that the diseases under consideration are generally self-propagating. On the other hand, the contagionists—or the advocates of the specific germ theory—maintain that no case of infectious disease can arise independently of a prior case, and to sustain their position point to the well-known fact that such disorders do largely owe their spread to communication, immediate or mediate, with former cases of the same disease.

As I am inclined to deal with matters of a practical and utilitarian character rather than to indulge in speculating or theorizing upon abstruse questions, I will not pretend to advance an argument in favor of either side. And whether the one party or the other be nearer the truth, or both be partially in error and partially correct, it is an indubitable fact that the presence of filth, and consequently

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of impure water and air, contributes very largely to the development and spread of zymotic diseases, and increases materially their virulence and fatality. This is the practical question with which we have to deal, and our aims and efforts must, therefore, be directed to the great task of so disposing of the waste and heterogeneous matter, conveniently termed sewage, and which is continually arising and accumulating, to the annoyance and injury of man, as to divest it of all noxious qualities, and to prevent the pollution by it of either water or air, and even to some extent of the soil itself.

I had prepared notes, in manuscript, of twelve epidemics—seven of typhoid fever; one of typhoid fever, scarlatina, and diphtheria co-existing; three of diphtheria; and one of diarrhœa—all caused unquestionably by drinking water polluted with sewage or excremental matter, or from using milk contaminated with impure water, all the cases being vouched for by scientific and trained observers of high character, but I will not lengthen this paper by incorporating them fully into it.

One of the typhoid fever epidemics was caused on account of drinking water from a well poisoned by leakage from a sink into which the dejections, presumably containing specific germs, of a typhoid fever patient, who had contracted the disease elsewhere, were emptied. Two of these epidemics of the same disease were caused by the accidental admixture of the fœcal discharges, supposed to contain specific poison, of a single typhoid fever patient in each case, with the general water supply of two different towns—in the one case over two thousand cases having arisen, with over a hundred deaths, and in the other three hundred and fifty-two cases, with twenty-one deaths—thus showing what power for mischief water acquires when accidentally polluted, and what wonderful multiplication of the disease germs or infecting principle occurs under favorable circumstances. In two other of the epidemics of typhoid fever the use of milk from a particular dairy, in each case polluted by foul water, was set down as clearly the cause of the outbreaks, one of them having scarlatina and diphtheria to co-exist with typhoid fever, as being produced by the same cause. Another of the epidemics of typhoid fever was set down as having been produced by both air and water polluted alike by excremental matter, and two from the use of well water polluted by leakages from neighboring cesspools. The three epidemics of diphtheria were all clearly produced by the use of well water polluted in

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consequence of communicating with cesspools in too close proximity to them.

All these epidemics occurred in England or Scotland, and the facts in reference to them were taken from English authorities that are unquestionably reliable.

The epidemic of diarrhœa occurred in 1879 in Hartford, Connecticut, and was regarded as having been undoubtedly caused by the substitution, on an emergency, of the river water for that from the reservoirs. On examination it was ascertained that a large sewer opened but fifty feet below the main inlet water pipe. By the tide and an eddy the sewage was set back directly over the inlet pipe, and was pumped up with the water. The onset of the epidemic was sudden, severe, and extensive, and limited to the region supplied by river water. Analysis showed the water to be very impure.

In the epidemics of cholera which occurred in England in 1849, 1854, and 1865, its spread by means of water polluted with its specific infection was convincingly proved, as stated in a lecture delivered before the National Health Society, by a greater mass of evidence than had ever been previously collected with regard to any other disease. The lecturer says, further, that "epidemics by the score—nay, by the hundred—might be cited in which the first cause has been the pollution of the water drunk by the persons affected. In fact, it has been one of our most familiar experiences that excremental fouling of wells is, in this respect, among the worst dangers which can threaten the health of communities, and other common water supplies are equally capable of spreading the infection."

In the Filth Report of Mr. Simon an abstract is given of the history of one hundred and forty-six epidemics of typhoid fever, investigated by the officers of his department during the four years from 1870 to 1873, inclusive, where, in all cases, great excremental pollution of air or water—generally both—was found to be the cause of the outbreaks. And from the many facts and opinions collected by me in my investigations, the inference may be fairly drawn, or the conclusion arrived at, that the virulence of the contagion of cholera and typhoid fever, as also of other contagious diseases, is much increased wherever surrounded with putrid matter. This conclusion would also apply to specifically infected drinking water which contains fermenting matter.

In all the numerous epidemics of milk typhoid, or milk scarlatina or diphtheria, the cause was the same—polluted water at the dairy,

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which intentionally or otherwise became mixed with the milk, and thus contaminated it with the germs of disease.

Reports of Boards of Health, State or municipal, show that in this country many similar epidemics have resulted from the use of polluted water, chiefly from wells, but in some instances from rivers contaminated by sewage. In Massachusetts alone, it was recently reported by its State Board of Health that over five thousand (5,000) deaths had occurred in two years in that State exclusively from diphtheria, arising from all causes; and in this State, according to the Biennial Report of the State Board of Health for 1877–8, the deaths from diphtheria, arising as in Massachusetts from all causes, amounted in the two years to one thousand five hundred and twenty-six, as reported from only twenty-four localities in 1877 and thirty-nine localities in 1878, thus showing that the reports were partial only as regards the whole State. The same report places the deaths for the two years from zymotic or preventable diseases at five thousand five hundred and fifty, according to the same partial reports, being over thirty-nine per cent of the entire mortality—a large percentage.

And as to the extensive influence and potency of impure air as the cause of disease, by serving as the medium for the transmission of the germs or morbific principles of the zymotic affections, or of other deleterious agents, the proofs are numerous and convincing. To illustrate and establish this fact, I will again refer to English authorities, because they are more accessible, and are usually more satisfactory in detail on sanitary subjects than are other authorities I have consulted. From notes taken from reports of six epidemics of diphtheria, I find that sewer or cesspool gas was the cause of each and every one of them, as was abundantly shown by the most competent Health Officers, after careful investigations. But it is sufficient merely to state these facts, so well attested, without swelling the dimensions of this communication by giving a detailed account of them. I will, however, incorporate here extracts taken from an editorial article in the *Sanitary Record* for June 6th, 1879, relating to several epidemics of erysipelas, because it details facts and circumstances in a style so clear and terse, and expresses views so just, that I believe it will be acceptable to the reader. It says: "There is now no more doubt that erysipelas is originated by sewer gas than that typhoid fever is due more often than not to impure water. For instance, at the Old Infirmary, Lincoln, some years ago, twelve or fifteen cases existed at a time. Then the hospital drains communicated with

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the town sewers, and as neither was ventilated or disconnected, the hospital had the benefit of the full pressure of the sewer gas of Lincoln, because the hospital lavatories and closets occupied the highest points to which any of the sewer connections extended. At Manchester, too, sewer gas had demoralized the health of the staff, and had so increased the amount of erysipelas and pyœmia that the surgeons were afraid to perform even the smallest operation. Recently the authorities of a large London hospital proceeded to ventilate the whole of the drains and sewers in connection with their institution. Up to the time those alterations were made, pyœmia and erysipelas had almost driven the medical staff to despair. When the whole of the ventilation was completed, and as soon as the pressure was removed from the traps of the closets and lavatories, no fresh cases were found to occur. For months the hospital wards were free from erysipelas and pyœmia. Suddenly, however, there was a fresh outbreak of these diseases, but it was noticed that the epidemic was confined to one of the surgical wards, built apart from the main building, on the pavilion plan, and having only one story. Close investigation proved that the ventilation pipe in this wing had been stopped by a careless workman. When this was removed, all trace of the epidemic disappeared, and for four years this hospital has been almost free from those diseases.

"I have been led to make the above remarks because, during the last week, an investigation of great interest has been conducted by the Somersetshire Coroner into the causes of a fatal outbreak of erysipelas at the County Lunatic Asylum. It appears that from December, 1878, to May, 1879, five months, thirty-two cases of erysipelas occurred, of which four proved fatal. By making a searching investigation it was discovered that none of the soil-pipes were ventilated, that most of them were of lead, and that several were rat-eaten and riddled with holes. The soil-pipe leading from the infirmary closet was found to have a large hole in it, and that it had a direct communication with the main sewer, which was often choked. In brief, almost every sanitary evil was found to be present in this ill-fated institution; fermenting sewage was a constant factor, and sewer-gas, conveyed from the sewers to the wards by the rat-eaten soil-pipes, had committed its fatal ravages unchecked and unsuspected for at any rate months, perhaps years.

"The verdict of the jury in the case of the deaths from erysipelas at the County Asylum declares that the deaths were due to erysip-

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elas, caused by the escape of sewer-gas into the asylum, owing to insecure and insanitary drainage arrangements. These instances seem to prove incontestably the truth of the declaration made at the outset of this article."

Air in large cities and manufacturing towns or districts is also often so polluted by coal smoke and noxious vapors from a great variety of works, as to become a prolific cause of disease, as well as of extreme annoyance, as has been fully shown by the evidence taken before the Royal Commission on Noxious Vapors, but there is no room here for detailed statement on the subject.

The *Russian Medical Gazette*, dated early in 1879, states that from the 10th to the 28th of December, 1878, fifty children died of diphtheria in one village. In January, 1879, two hundred died in another, in addition to the adults; and in the environs of the same, a little hamlet, about the same time, lost more than a hundred of its inhabitants. It committed much havoc in other villages. In another district from seven to nine died daily. In still another district it has raged since 1875, three years, during which time it has gone from one village to another, and increased in intensity from year to year. From its appearance in 1875 till December, 1878, the number of persons in that district who were attacked with it amounted to fourteen thousand, five hundred and ninety-eight, of whom six thousand, two hundred and twenty-four died, being over forty-two (42) per cent of mortality of all those stricken. In respect to the entire population of the district, that gives twelve per cent stricken by the disease, and five and one half per cent who have died of it.

"These figures are sufficiently striking," says the writer, "to allow of an epidemical character being attributed to the malady, which probably had its source in the unfavorable hygienic condition of the populations." A Rural Council finally recognized the necessity of introducing proper sanitary measures, and in March of this year, (1880,) it was stated in a St. Petersburg paper that nineteen sanitary detachments of physicians and nurses had been set to work in a single Province to combat the ravages of diphtheria. It is to be hoped that that phlegmatic people have at last been sufficiently aroused and interested on the subject in question to insure the adoption and efficient execution of such systems of sanitation as have been effective elsewhere.

And as to yellow fever, whether arising spontaneously in our gulf coast cities, or from the importation of the specific germ from other

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places, as Havana, where it is endemic, there is no question but that it prevails far more extensively, and with much greater virulence and mortality, where filth abounds, and the soil, water, and air are all highly contaminated, than where such conditions do not exist, thus showing that the pollution of the elements named plays an important part in the spread and fatality of this disease, even if it be not the original cause of it.

The State Board of Health of Louisana, in their Report for 1879, accept the theory that yellow fever is a zymotic disease, contagious in its nature by the multiplication of its germs; and in reviewing the history of nine epidemics in New Orleans, and twenty-two in the towns of Florida, they claim that their origins were due, directly or remotely, to foreign importations of the germ, and they have earnestly endeavored, therefore, to prevent its introduction into their metropolis by the most rigid system of quarantine and the free use of disinfectants, which they assert have been successful on some occasions. How the fever originated in 1879 is a question involving much diversity of opinion. There is little doubt, they say, concerning the origin of the fever in Memphis at the same time, which was undoubtedly due to the revivification of the germs of the disease, in consequence of coexisting and exciting causes of a local nature; and they hold that, dispensing with the cases traceable to a particular external source, the remaining ones were the result of the germs of infection lying dormant since the epidemic of 1878. But they do not hesitate, at the same time, to express the belief that to the foul privies, and consequently contaminated soil, water, and air, they must look to discover the pabulum which feeds the cause of the pestilence. And to the extremely filthy condition of Memphis, and the polluted state of its water and air, was attributed the persistent prevalence and fearful fatality of yellow fever during the recent epidemics of that disease in that ill-fated city.

And now, having shown by indubitable evidence, as I think, that impure water and air are fruitful causes of disease and mortality, we must next consider the extent of the existing evils; the means resorted to for their removal or prevention, and with what success they have been attended; and what general course should be pursued, under all the circumstances, to reform the vicious habits of the people that have led to such evils; to correct erroneous or defective sanitary systems, and to insure by degrees better protection to the public health. These are questions of the highest moment, that have engaged for

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years the profound attention and earnest thought of many of the ablest and most scientific men of the day, and it may be held by some that none other should presume to deal with or discuss them; but I claim that the humblest of us may, nevertheless, venture to review the entire field, to present striking facts, from whatever source obtained, and to offer suggestions, in a modest spirit, as to the general line of conduct best calculated to solve the great problem of disposing of waste or excremental matter, animal or vegetable, usually designated filth or sewage, in such manner as at least to greatly lessen the mortality occasioned by it.

It may be as well to inquire first into the sanitary condition of England—of London, particularly—where, for many years, such great efforts have been made, and vast sums of money have been expended, to improve that condition.

The partial failure of the great sanitary work of disposing of the sewage of the metropolis has been the subject of general regret and disappointment, for the outcome of the system undertaken by the Metropolitan Board of Works at enormous cost was not such as was contemplated.

A report presented to the Conservators of the River Thames upon the discharge of the metropolitan sewage, containing all the excremental matter of the city, at certain outfalls about fifteen miles below it, shows that these works have not accomplished the chief purpose for which they were projected, namely: to get rid of the filth and pollution of the metropolis. It was assumed that the sewage from the outfalls would, if discharged at ebb tide, when the set of the river was seaward, be taken out to sea and be heard of no more. It now appears that the flood stream being superior, as regards its erosive power, to the ebb, the sewage pollution which is held in suspension is driven up the river, far beyond the outfalls, and is deposited in the form of offensive and unhealthy banks of foul mud. This explains how the sewage mud banks and other dangerous deposits in the upper reaches of the river are formed. A civil engineer, a great authority on hydraulic engineering, predicted that discharging the sewage into the Thames by these outfalls would cause a dangerous pollution of the river and injury to its navigable channel. His prediction has been verified. The injury to the navigable channel of the river by the formation of the mud banks must be a serious inconvenience, but when they are regarded as masses of putrifying sewage matter, the sanitary aspect of the case requires grave consideration.

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Besides the danger to health from the exhalations arising from the sewage accretions deposited on the banks of the river and exposed at low tide, there is the mass of polluted water eight miles long traveling up and down the river. It has been erroneously thought that sewage becomes oxidized by admixture with running water in a river, but the purification by this means has been found to be but slight.

The insanitary results which have unmistakeably followed the discharge of the metropolitan sewage into the Thames serves, indeed, as a warning to those who are following in the same wrong direction, besides proving a serious damage to all immediately affected by it. Many watering places have availed themselves of their proximity to the sea to cast their sewage into it, in the vain hope of thereby getting rid of it. No greater mistake could have been made, as the experience of many fashionable watering places proves. Owing to the sewage having a higher temperature and a lower specific gravity than sea water, it floats, and does not mix and become diluted, as is ignorantly imagined. The sea water acts chemically on the sewage, and sulphuretted hydrogen is liberated, producing its well known offensive smell. The decomposing mass is tossed about by every tide, and returns its pollution, either in the form of offensive gases wafted from the sea, or deposits the solid parts along the coast, to evolve, in its own good time, smells which drive away any seekers after either health or pleasure. Visitors have the evidence of their olfactory nerves in confirmation of this, and places where these evils are known to exist will acquire bad reputation and be avoided. Owing to the superior lightness of the sewage matter, it is of no use to run it into deep water, as it rises to the surface, to be as much a nuisance as if it were discharged into shallow water. The evil effects of so disposing of it have been most grievously experienced at six or eight watering places that might be named, where its invasion of the bathing places or machines, and the offensive odors arising from the chemical changes its presence produced, caused intolerable annoyance and disgust. More need not be said.

The water supply of London is abundant, but its average quality is by no means good, according to the weight of the best authority. The supply is furnished by seven companies, having an aggregate capital of £13,000,000. It is only the water delivered by two companies (deriving their supply from deep chalk springs) that is pure, except as to hardness, the percentage of the population furnished by them being only about seven. The water delivered by the five com-

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panies deriving their supplies from the Rivers Thames and Lea, although efficiently filtered or otherwise treated before delivery, is very much polluted, and is considered by the majority of analysts as unfit for dietetic use.

Frankland concludes, after making careful analyses, at different times, of various samples of the water, although it had been efficiently filtered, that it was still, in each case, "quite unfit for dietetic purposes."

Angell, Burdett, Wigner, Calver, Mackadam, and Jevons, after each of them had made repeated analyses, agree in a great measure with Frankland, while Robinson and Tidy, after similar examinations, maintain that the water as delivered by the companies, having been purified by the processes in use for that purpose, is, as a general thing, sufficiently wholesome, and should be satisfactory.

The decided majority, however, condemn the quality, and urge that radical steps should be taken to secure purer water, not only to the City of London, but to all other places, the rural districts not excepted, where the present supply is not satisfactory in character. They stoutly insist that the rivers, at the sources of supply, are much polluted by sewage, which is often in a state of putrescence; that the processes for purification rid the water of only one third of its organic impurities; that it is often offensive to smell and taste and disgusting to sight; that the sewage deposit is many feet in depth and is continually fouling the water and emitting offensive and poisonous exhalations while being agitated by the tides or by navigation, and that it is out of the question to discharge sewage into any river, at any point, unless it had previously undergone purification, which is difficult of attainment and often incomplete.

Dr. Mackadam, in a paper on "The Contamination of Potable Water in Domestic Cisterns," expresses the decided opinion that not only is the water in cisterns rendered more or less impure from imbibing noxious gases led by waste-pipes, etc., from drains, sewers, traps, and cesspools, but also from contact with the sediment or deposit lying in the cisterns themselves, and that in many cases the evil effects of impure water supply are directly traceable to the contamination of the water by its being retained in domestic cisterns containing impure deposits which may have been lying there for lengthened periods. Hence the importance of cleansing out these receptacles often and thoroughly. After stating the results of a number of experimental analyses, Dr. Mackadam continues thus: "These results

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prove that the water suffers severely in quality from being retained in vessels containing cistern deposits, there being a decided increase in the organic matter in solution and in the saline and albuminoid ammonia, whilst there is a marked decrease in the proportion of oxygen gas dissolved in the water. The foregoing results demonstrate that the water supply of a town or populous place, which may be everything that is desired at the fountain head, and even at the supply pipe as delivered to the householders, is liable to very serious contamination when retained in house cisterns containing deposits or sediments which are composed in part of finely-divided lead compound and decaying or putrescent organic matter; and I am confident that in many cases the water supply of both towns and mansion houses is rendered unwholesome from being retained in dirty cisterns. The remedy for the evil, as already stated, lies in the periodic cleansing of these house cisterns. A wire or perforated zinc cover might be placed over the cistern to keep out mice or any foreign body, but a tight cover, which hinders the aeration of the water, should not be used."

The results of inquiries in connection with a paper read, and a discussion had upon it, at the rooms of the Social Science Association, in regard to the question of water supply, were the recommendations that recourse should be had to the sources of river supplies—namely, the shallow springs at their heads rather than the streams themselves, and to soft water rather than hard, as well as to constant distribution and street hydrants instead of the intermittent plan. Those principles have been applied in many provincial towns with undeniable advantage, the supplies of soft spring water being, in some instances, double the consumption. Unity of management, too, ought, in the opinion of the Association, to result in a saving of water, and it was claimed that a sufficiency of surface spring supply for all purposes could be placed beyond doubt. It was claimed, further, that the conditions of a good supply were a pure source, constant service, high pressure, and public control; and none of these conditions existed in the metropolis. The allegation that oxidation, subsidence, and filtration rendered sewage-contaminated water fit to drink, was a theoretical conceit, repugnant to sense and natural instinct in times of general health, and when cholera and typhus or typhoid fever prevailed, attended with special danger. The present intermittent system, it was held, made a "good supply bad, and a bad supply worse," for butts and cisterns were snares for pollution.

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The scheme of the Metropolitan Board of Works was to draw pure water from the chalk basin for domestic use, and to retain the present source of supply for all other purposes. In the discussion, public purchase and management of the water works were approved, but the dual scheme met with no support.

Various processes have been invented and put in operation, as already mentioned, to purify polluted water, or to cleanse sewage before it be allowed to be discharged into rivers, a number of which are held to be very effective, some persons maintaining that the effect is so thorough that the foulest water containing sewage may be so divested of its impurities as to render it quite palatable and safe for domestic use, while others as strongly maintain that no process whatever is capable of rendering such water wholesome and fit for such use. That some of such processes are of considerable benefit, and that they are put in use with fair success on the water supplied to the London consumers, seems to be reasonably well attested; and that the water supply of that great city, while far less pure than potable water should be, is yet probably not much behind the average purity of that which is furnished to large cities generally, is a conclusion that at least respectable evidence appears to warrant us in assuming. The weight of authority seems, after all, however, to be against the fitness of such supply in the main; and, in his report to the Local Government Board, Professor Frankland says that his analysis of the water supplied by the Metropolitan Water Company, made in October, 1879, shows that the waters of the Thames and the Lea were much more polluted during the year with organic matter than they were in 1877. More than one half of these waters were often much polluted with organic matter of animal origin; about 80 per cent of the balance was occasionally, but less intensely, so polluted, and only 6½ per cent of the whole were uniformly delivered in a pure and wholesome condition.

The City of Paris is supplied with much purer water. It is supplied from four different sources, each source furnishing about one fourth the entire supply. One fourth is taken from the River Marne, fifteen miles above the city and five miles above its confluence with the Seine; one fourth is furnished by a spring or springs thirty miles off, and is conveyed in pipes; one fourth by artesian wells, over two feet in diameter; and the other fourth from the River Seine, pumped up from it at a point seventy-five miles below the city, by the course of the stream, but only fifteen miles off in a straight direction, and is

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thence conveyed to the city through a pipe of proper capacity. As the excremental matter is not discharged into the Seine, but only the storm or surface water, the slop water from the houses and the urine from the urinals, the river water is far less polluted than is that of the Thames, which receives all the sewage of London, the excremental matter included, while the storm or surface water is excluded from it.

As to the relative purity of the water supply of Paris, derived from different sources, that from the springs stands first; from the artesian wells, second; from the Marne, third; and that from the Seine, fourth and last, although this, the most inferior of any in quality, is not very impure.

In regard to the quality of water supplied to the large cities of this country, I have not been able to obtain as definite information as I would like.

The source of the water supply of the great City of New York is comparatively good or pure, but how much it may become deteriorated or polluted before it is delivered to consumers I am not prepared to say.

The City of Philadelphia obtains its supply of water from the Schuylkill River by pumping into a large reservoir, where it is constantly stored, for distribution as needed. The river must necessarily be polluted, more or less, above the point of supply, as towns, tanneries, etc., are situated on its banks, as is the case with most rivers, and then the long standing of the water in the reservoir, where there is much impure sediment in the bottom of it, must lead to its contamination in some degree from putrefactive fermentation. And I am aware that the quality of the water has been impeached, while I am not prepared to say to what extent or with what justice.

The water supply of Boston is derived from four sources—a lake, two ponds, and a river—all more or less exposed to pollution, the lake least of any. The country around about or on the line of these sources of supply is thickly populated, being the site of many villages and manufacturing works, and constitutes the water sheds that empty their storm waters, with the washings of the general surface, into them. This being the case, it seems reasonable to conclude that the quality of the water cannot be good. It is, indeed, admitted and regretted by the State Board of Health of Massachusetts that its quality is objectionable.

Chicago is supplied with water taken from Lake Michigan, through eight miles of lake and land tunnels, run sixty feet below the bottom

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of the lake and surface of the city's site, the last mentioned or land portion being three times as long as the first, and four hundred and thirty miles of main water pipes, all supplied through the lake tunnels, which obtain their supplies, in turn, through shafts situated inside of and protected by a crib two miles out from shore. The cost of these water works, which belong to the city, up to December 31st, 1877, was $8,344,305 08, according to the Mayor's report.

All the sewers of the city, containing every species of sewage, are discharged into the Chicago River and its north and south branches. These streams flow through the heart of the city, and, with their waters laden with its entire vast amount of sewage, are discharged immediately opposite its central part into the lake, through the main river. The large deposit of the solid matter from the sewage discharged into the river and its branches so fills up their channels as to interfere materially with their navigation, and necessitates the annual or repeated dredging of their bottoms at a very heavy expense.

The crib is located in the lake about two miles from the mouth of the river, in a northeastern direction. There are two sets of pumping works, for pumping the water to the proper elevation for distribution by gravitation—one near the lake shore north of the mouth of the river, and the other in a southwestern direction from it, at a distance of three or four miles. The cost of pumping at the two pumping works amounted, in the aggregate, to $116,043 for the year 1878.

When heavy rains occur, with strong southerly winds, the sewage discharged through the mouth of the river is driven up to the crib, and serves to pollute the water supply of the city. So says the City Engineer. And the analytical chemist employed by the city reports that he discovers impurities in the water taken from the hydrants. He says, further, that careful observation by different microscopists does not leave a reasonable doubt that nearly all of the impurities, properly so called, found in the water as drawn from the hydrants, comes directly or indirectly from the sewage in the river water that is discharged into the lake. Of animal life there is an interesting variety. Occasionally is found some of a very objectionable character that have evidently been carried out to the lake crib by the lake or river currents from the breakwater or shore, where, at certain seasons, they are to be found in great numbers, especially near the river or outlet. Storms scatter these organisms in the waters of the lake for some considerable distance from the shore, and when once taken into the tunnels and mains they continue to multiply, and a few

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of them can be found in the water supply at almost all seasons of the year. Evidence in corroboration of statements like this is so abundant and easily obtained that it cannot be successfully refuted, and the only conclusion that can be arrived at is, that the purity of the hydrant water can only be maintained by preventing the discharge of all impurities into the lake, or by extending the tunnels a sufficient distance from the shore to be beyond their influence.

The report of the State Board of Health of Michigan for 1878 on the subject of Water Supply, informs us that Detroit obtains its water supply from the Detroit River, which is polluted by the sewage of numerous towns situated above on its banks; and Detroit, in turn, pours its sewage into the same river, to poison the people residing on either side of it, lower down. And Lansing obtains its supply of water from Grand River, which receives the sewage of Jackson and other places situated higher up its course, among others being the State Prison, where the night buckets of all the prisoners are emptied into a sewer which at once discharges the excreta of nearly one thousand men into the same stream.

Other proofs that a systematic pollution of the rivers of the State might be brought forward, and the evil must augment with an increase of population, unless it be prevented by timely precaution. To resist the beginning of evil is the demand of sanitary science on this subject.

The water supply of San Francisco is obtained from a set of springs, three several small lakes, and a creek, all situated within a distance of about twenty miles, and is conveyed through iron pipes and wooden flumes, a tunnel of a mile and a half in length having been found to be necessary, and which was constructed on the route.

The Spring Valley Water Company, owning the works, claim that the water is of good quality, and that the supply is not only ample to-day, but is sufficient for a much larger population. They claim, further, that the supply from the present sources could be very much enlarged with but little comparative cost, and that the water from a new district, if added to that of these, would swell the aggregate capacity to from six to ten times the present demand. They further state that when practicable or contemplated plans of alteration or improvement shall have been carried out, or their secured resources of supply shall have been utilized, two present resources requiring pumping to lift their waters to the necessary elevation may be dispensed with, and the entire supply be thereafter conveyed by gravitation to the distributing reservoirs located on elevated points within the city limits.

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Although a few artesian wells have been sunk in San Francisco, and are furnishing water of a satisfactory character, the proposition to supply the city solely from such sources is regarded as impracticable, since the supply would be unreliable, and probably inadequate, judging from the experience of some other communities in respect to such supply. This we would at least be justified in apprehending. Besides, the quality of the water thus obtained would be uncertain, and might be impure, as has been found to be the case in some other localities.

The quality of the present supply has not been much complained of, and is probably of fair character, but it has been shown that some of the sources of it have been polluted, and that they are constantly exposed to pollution, as must necessarily be the case, more and more, where the water sheds about them are inhabited, and must become more densely populated from year to year. And if the water contained any organic matter it would necessarily deteriorate when stored in the reservoirs, from the increasing pollution that would be caused by the putrefactive changes that would occur in the deposited sediment in those receptacles.

The project devised and submitted about ten years ago, by Colonel W. A. Von Schmidt, to supply San Francisco and other places with water from Lake Tahoe, struck me most favorably at the time, and all investigation made by me since, and further consideration I have given to the subject, have but confirmed my first impressions. It is a grand conception and an enlightened and wise scheme, not a visionary and impracticable absurdity; for science now a days achieves what would formerly have been regarded as miracles, and we should have implicit faith, not blind but intelligent, in almost anything that may be promised for it by those who have mastered its principles in all their intricacies and subtleties, and who have shown by their works that they may be relied on to carry out to success their greatest proposed undertakings, however bold or gigantic they may be.

I have carefully examined in detail the plans of this project, and believe it to be entirely feasible; that, if adopted, it would prove to be a good investment for the city, and that, if executed, it would be of incalculable benefit to all who would be brought within the range of its influence, or who might be privileged to partake of the pure waters it would dispense, instead of the distasteful and perhaps poisonous supplies that some are now compelled to consume to satisfy the imperative needs of the system.

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For a pure and wholesome water supply it is indispensably necessary to obtain it from a pure source, and to so manage it as to preserve its purity, by preventing any possibility of its contamination while in transit, or when stored in reservoirs. The chief objection I would suggest, therefore, to the details of the plan is to the conveying of the water so far—nearly one half the entire distance from the lake to San Francisco—in an open channel of river and canal, instead of in a wrought iron pipe for the whole distance, as is proposed for the last half of it only. The water would be exposed to pollution while passing through the open ways; and, thus exposed, could not possibly escape it. I would, therefore, deem it far better, even at considerable additional cost, to use the iron pipe of the larger size proposed through the entire route. The general rule throughout the world, with occasional exceptions, is to expose the water supply of cities and towns to pollution, or even to pollute it directly and willfully, and I would be glad to see California, as generally as possible, stand as an exception as regards that abominable and suicidal habit, sometimes arising from discreditable parsimony, but oftener from want of knowledge, and consequently the lack of a just appreciation of the dangers on the one hand and the benefits on the other, accordingly as to whether sanitary laws shall be disregarded or properly observed in reference to this important matter. The polluting material of an organic nature often enters into a species of fermentation, or the specific disease germs engage in the work of propagation, that leads, in either case, to such rapid and boundless multiplication as, from a very small beginning, to result in the contamination, more or less, of the entire mass, even when very large. Abundant evidence of this fact is afforded even in the cases cited in this paper, and I would hope that we would profit by the fearful warning the examples alluded to give us. But man seems to be strangely constituted in some respects, and to be inexplicably blind or indifferent to what vitally concerns his health. We might go further and say, he is marvelously stupid, and insensible to the disgusting, for we find him all over the world polluting his water supply with his own excreta, and then gulping it down in large potations, or using it in cooking his food, or for other domestic purposes. We see this noticeably exemplified in the great City of London, at Boston, and in many other—indeed, in nearly all other—places, but more strikingly in Chicago than in any large city with the course of which, in this particular, I am acquainted. There, at an expense of millions of dollars, they have constructed a splendid

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and complete system of sewerage, which receives the entire sewage of the city, and all this is discharged through the Chicago River into Lake Michigan. Then, at an expense of about $10,000,000, they have constructed complete and efficient water works, to pump from the same lake the water supply for distribution to the whole city, for all purposes. This water, thus returned to the city, is found by different analytical chemists, in various analyses of samples of water taken from the hydrants, to be considerably polluted by organic matter of a poisonous nature, and which was evidently derived from their own sewage. No other result should have been expected, and it seems strange indeed that so intelligent and enterprising a people should have been guilty of so gross a blunder. But this is only a typical instance of what is constantly being enacted almost everywhere, to a greater or lesser degree.

The water supply everywhere, where it is practicable, should be obtained from pure sources, high up in the hills or mountains, or from inaccessible or sterile regions unfit for habitation, so as to provide against the possible contamination of the water, and then, for the same reason, it should be conveyed in iron pipes from its source to the point of delivery. This idea is beginning to find recognition, noticeably in England, where the question of a better water supply has agitated the public mind for years, and where they are looking to the surface springs in the hills for a purer supply of the needed liquid than they have thus far had, notwithstanding all their efforts at the purification of water, once polluted, by filtration, subsidence, precipitation, or irrigation.

California is singularly favored in having so many lakes of pure soft water upon her mountain ranges, and all these should be utilized by having their waters conveyed, in the manner here advocated, to the cities, towns, and plains below, where it is at all practicable so to do, and then her example should be urged upon all other States and countries, to be adopted by them as far as practicable.

Sacramento obtains its water by pumping it directly from the Sacramento River, opposite the Water Works, which are situated near the upper end of the city, and that supply is polluted by the sewage of the towns and other settlements upon the banks of the stream higher up or near its tributaries that empty into it above the point of supply, including the American River, upon the south bank of which, twenty-five miles above, is situated the Town of Folsom and the Branch Prison. The consequence is that the water supply of the

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city is more or less polluted, the amount of pollution varying considerably at different times, as is made manifest by its sensible properties to those who drink it. And this pollution must increase, as it does everywhere else, as the country becomes more thickly settled, and the opportunities or occasions for pollution multiply.

The water supply of Oakland is unusually good, being from artificial lakes whose waters are gathered from among the hills where at present no source of pollution exists.

But, as a general rule, our smaller towns and villages are supplied with water from shallow wells that are polluted to some extent by surface water and by leakages from neighboring cesspools. This is a lamentable condition of things, and the vicious system of digging wells and cesspools in close proximity, as is very often done, to lead to or allow the interchange of their contents, should be inveighed against unceasingly and loudly until the public stolidness or apathy on the subject shall have been replaced by a more intelligent appreciation by them of the facts, and of their duty in the premises.

At this point I will again allude to San Francisco, that I may say something in reference to two matters that concern her, and which have not yet been fully disposed of, as I understand, by the people or authorities of that city. One relates to sewerage and the other to the use of sea water for certain purposes.

The system of sewerage projected for that city several years ago, but never completed, seems to me to have been well designed except in one important particular—that is, the discharge of the sewage into the bay. Three years ago, in a report to the State Medical Society, I held that that arrangement was a good one, if the discharge pipes were extended sufficiently far out to prevent the return of the sewage to the shore to create a nuisance, not then understanding how difficult or impracticable it would be to carry out successfully such an undertaking; but investigations since made, and knowledge since acquired in reference to the experiences of various communities in their efforts to make like disposition of the same troublesome matter, convince me that the opinion alluded to was erroneous, and now I am satisfied that no such disposition of it should be attempted in front of a city or town, for reasons that have been fully stated elsewhere in this paper.

The other question or matter is as to the policy of employing sea water for the extinguishment of fires, for sprinkling streets, or for flushing sewers. Experiments made elsewhere on these points prove satisfac-

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torily to my mind that it is unfit for such uses, for the reason that, besides necessitating the establishment of two systems of mains or pipes, which would be inconvenient and costly, it would discolor and damage houses upon which it might be thrown, whether of brick or of wood, particularly the painting upon them; that it would corrode metals with which it might be brought in contact, whether it were in the outside walls of buildings or on the streets, including the rails of railroads and the tires on the wheels of vehicles, and even the pipes that would convey it. It has been suggested, further, that in flushing it would damage the sewers that might be composed of metal, and cause deposits in all of them to such extent as to so clog them as to interfere materially with their discharging capacity. These several objections would be sustained by the experience of other communities, according to the testimony of careful observers.

Having shown the pernicious effects of impure water and air; the insanitary condition of various places as regards the quality of these elements, owing to want of sufficient drainage, the faultiness of sewerage systems, and the consequent improper disposal of sewage; the impurity of water supply on account of the fouling of streams, wells, and other sources of supply, and the failure from want of correct views, or lack of interest or enterprise, to utilize other and better sources; and the want of good or proper ventilation, in consequence of which the air consumed in respiration becomes tainted and unfit for such use—besides having incidentally made apparent many other violations of true sanitary laws—it remains now to point out or indicate the best general course to be pursued to remove the numerous evils existing, and to guard as well as practicable against their repeated recurrence or continuous existence, as well as to prevent their augmentation or the occurrence of new and still graver visitations or afflictions. And as sewage causes more mischief than does any other agent, by the pollution of soil, water, and air, it is well to consider first its disposal.

The pneumatic system of sewerage has attracted considerable attention for the last several years, and it is to be hoped that continued attention and experiment in connection with it may lead to its perfection to such a degree as to virtually solve the difficult and perplexing problem now at issue—the satisfactory disposal of sewage. Captain Liernur seems to have been the first inventor of a system of sewerage on the pneumatic principle, and an account of his plan was first published here in the biennial report of the State Board of Health

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for 1874–5, as taken from the *Sanitary Record*, London, of November 21st, 1874. It is based on scientific principles, and is proposed as a substitute for the water carriage plan, which acts by gravitation. The article alluded to was prepared by Adam Scott, C. E., Liernur's chief representative, and in it he presented the new system in a very captivating light. The conception, indeed, seems to be a very happy one, and if it could be carried out successfully in all its details, and could be made a success financially, it would, in reality, virtually solve in a satisfactory manner the difficult problem under consideration, for it proposes to utilize the material to be disposed of by converting it promptly and speedily, before it can enter into putrefactive fermentation, or pollute the soil, or air, or the waters of wells or streams, into a valuable fertilizer that would bear transportation, as does guano, to any distant point where there might be a demand for it. But in operation this system has not proved as successful as it was promised in advance that it would. The matters dealt with were really found to be too solid and tenacious for the mechanical processes to which they were subjected, so that they clogged up the pipes, and compelled at times the stoppage of the works. Besides, the cost of constructing and operating them was too great for the uncertain income, and hence a pecuniary loss was entailed upon the enterprise. The system is, however, beautiful in principle, and should, and doubtless will, be so improved as to render it practical and most useful in the end. It strikes me that a limited but sufficient quantity of water should be added to the too solid matter, so as to allow of its easy conveyance through the pipes and to prevent it from adhering to and clogging them. Scientific experiment and unflagging perseverance in efforts to improve and perfect, in its practical details, this grand design, should, and I believe will, eventually result in substantial success. The true policy, to my mind, in dealing with sewage, or at least with the excremental and kitchen slops portion of it, is, as may be inferred from what I have said, to utilize it by converting it, with the aid of science, into a valuable manure, as is proposed in the system just alluded to, instead of passing it through sewers into rivers to pollute their waters, and in its course to contaminate the air also; or of discharging it into seas or bays, for reasons that have been given; or, yet, of employing it in sewage irrigation, although it is generally admitted that sewage farms are not unhealthy, nor their products unwholesome.

Acting probably upon the ideas made prominent in the published

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account of the system just alluded to, Mr. Isaac Shone, of Wrexham, England, has invented or proposed a system, which is designated "Shone's Pneumatic System of Sewerage." This system is attracting a good deal of attention and is eliciting considerable discussion among engineers and other scientific men.

This system does not claim to deal with the sewage at the outfall further than to aid, by means of pneumatic power, in its distribution upon the land or into the sea, or into tidal rivers at all and any state of the tides; neither does it interfere in any degree with the ordinary domestic sanitary arrangement, except that it urges, in unison with all advanced sanitary authorities, a disconnection, as complete as possible, of dwelling houses from the sewage gas inlets in the form of the soil and waste pipes and cellar drains. It recommends that a separate system of drains should be provided for the surface water, so as to reduce the steam power needed to work the ejectors; but even this restriction is not a *sine qua non* of its adoption.

In the plan of a town laid out under this system, the town was shown laid out into five groups or areas, each drained to its center with ordinary glazed earthenware gravitating pipes, laid to a minimum fall of 1 to 200. In each of these centers was placed a Shone's pneumatic liquid ejector, served with compressed air by means of small iron underground pipes communicating with an automatic air compressor and steam engine. The ejectors were shown placed in underground chambers, having access to the street by manholes. From each of two ejectors the main sealed sewers of cast iron ran up hill until a high ridge was crossed, after which they discharged into glazed earthenware gravitating pipes, with rapid gradients, and consequently reduced sectional area, by which the sewage was conveyed into the moss. The other three ejectors discharged their contents directly into the upper part of this pot sewer at such a level as given to gain additional "head" to the fluid.

The ejectors are described as vessels constructed of iron, into which the sewage from the houses flows via the gravitating sewers in each group. The process for raising liquid sewage by aid of a float, is explained in detail, but this I will omit. The cost of the system is estimated to be about one third the cost of the Liernur system, for somewhat similar work. The system is commended for its simplicity by those familiar with its action. Thus far this system is described only so far as it relates to the removal or transportation of sewage, but not as to the manner of treating it or converting it into a fertilizer, to which extent, indeed, it has not yet been carried.

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On July 19th, 1879, a large number of engineers, medical men, and other professional gentlemen, met in Wrexham, to consider this system. The following resolutions were offered and adopted, after full discussion: "First, that the working parts of Mr. Shone's pneumatic ejector and Mr. Sturgeon's air compressing machinery are so simple that the wear and tear and liability to get out of order are reduced to a minimum. Second, that the system is admirably adapted, in an economical and sanitary point of view, for the sewerage of low lying districts. Third, that the system is admirably adapted for the sewerage of the low level districts of towns situated on gradually sloping ground, from which the sewage can be conveyed partly by gravitation." It was particularly commended for its simplicity and efficiency, the consequence being that the sewage could be taken at little cost to any place needed, from low places and over hills, without tunnels or deep cuts, and they had no reservoir to fill. Another advantage was that whilst the sewage was progressing through the town they had no manholes through which to admit the escape of any gases, which resulted from decomposition; in fact, there was no decomposition, owing to the rapidity with which the sewage was driven, it being carried away before decomposition took place. Therefore it was held that in all towns this system should be introduced, if simply on the score of health. And instead of having sewage accumulate in low places, or thrown into the sea, it may be driven up into the surrounding country to irrigate it.

There is much in these two systems to encourage the hope that some happy plan may yet be devised to divest sewage of all its noxious qualities, and to convert it speedily into a valuable and harmless article of commerce. But rather than keep up the present system of water carriage through lengthy sewers, and the discharge of their contents into the rivers, bays, or seas, it would be far better to adopt the Paris plan of storing excremental matter in large water tight pits or cesspools, sunk in the center of a block, to receive from all sides the excreta from all the houses situated on such block, the removal of it being made at intervals by odorless excavators, and conveyed to the country to enrich the soil. And so this should be the general plan, in my judgment, in cities, towns, and villages, and even in the country, until some plan shall have been perfected to convert such matters in cities or large towns, at least, immediately into a harmless manure. But in this case the water

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supply should be obtained from a pure and distant source, or from deep artesian wells, which could not be polluted by surface water or from percolation from soils largely impregnated with foul and poisonous matters. The laws should sternly prohibit the sinking of cesspools and wells on the same premises, or in any instance in such way as to allow the contents of the one to find their way into the other. Indeed, where cesspools are deemed to be necessary in a town no shallow well whatever should be allowed. But, in that case, either artesian wells, or cisterns constructed above ground, and well covered in and shaded, and supplied with rain water, should be looked to for a supply of water for general use. And in gathering rain water for storage, none should be allowed to enter the cistern in any rain until after the roofs of houses had been thoroughly cleansed by the rainfall, and the atmosphere had been purified by the same means. At intervals, under such an arrangement, the cesspools should be emptied by the odorless excavator, or by the operation of such a system as Shone proposes, and the matter thus removed should be transported to the agricultural lands for fertilizing purposes. This plan could be more easily carried out, in many cases, than the water carriage system proper connected with sewage irrigation, because it can be operated without regard to inequalities of surface. Both plans are objectionable and expensive, however, and efforts should never cease until a general system shall have been perfected for such immediate conversion of the sewage into a portable manure, as has been proposed.

But I would not by any means recommend the total abandonment of the water carriage system. It is an admirable contrivance for washing out hoppers, and for floating by gravitation the excremental matter to large central cesspools not very far distant, as in plans like that in use in Paris, or for conveying such matters through sewers to more distant points, where it may be utilized in sewage irrigation. Water is also necessary in the pneumatic systems, not for carriage by gravitation, but, as already suggested, to convert the solid matters into a semi-liquid state, so as to facilitate their transportation by suction power.

There are many other conditions or occasions where scientific principles and skillful mechanism may be advantageously appealed to for transforming otherwise waste and injurious matters into valuable products, or for applying them to useful purposes. As instances, the treatment of coal smoke and fumes from chemical and other works, and

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the collection of the waste products of industry from print and other manufacturing establishments of every description, to be dealt with according to circumstances, may be mentioned. Here well devised and skillful treatment of these substances, whether coal smoke, acid fumes, or other refuse matter of manufacturing works, may result in many valuable products, to take the place of what, without such treatment, would be nuisances, not only offensive to the senses but deleterious to health also, through the medium of air or water.

It is estimated that one and one half per cent of the vast quantities of coal consumed escapes into the atmosphere as cinders, or as sulphurous or sulphuric acid vapors, resulting from the oxidation of the sulphur contained in the coal. To get rid of this pollution of the air, which, besides being very damaging to brick buildings particularly, is peculiarly irritating to the respiratory organs, many experiments have been made, and smoke washing and other contrivances have been invented. Most of them have proved to be failures, principally because they aimed to get rid of the blacks or soot more than of the invisible constituents of coal smoke, which are so deadly in their effects when concentrated, or because they were constructed of iron which was destroyed by the acids. Finally, a smoke and fume washer was constructed of wood, with a solution of milk of lime in the tank, that fully met expectations. When coal smoke was passed through this solution the whole of the acid vapors were absorbed, and a solid product, containing so much calcium sulphite as to form a valuable disinfectant compound, was left as a deposit in the tank. This compound, which also contains the blacks, when freed from the water, its value depending upon the sulphite of lime and a little carbolic acid, is worth in England £12 per ton.

The same general ideas may be expressed and are appropriate in reference to private slaughter-houses, or in regard to abattoirs. At these places every portion of the carcass of the animals slaughtered may be utilized and applied to some useful purpose, or converted into some valuable product, so that no waste or nuisance would occur from the business of those establishments, to operate as a loss, or to taint the air to the injury of those who might inhale it.

It has been abundantly shown that noxious gases, or air containing specific disease germs, are prolific causes of sickness and mortality, and all sanitarians admit the necessity to health of pure air; and when it is remembered that all other requisites of existence, such as pure food, pure water, etc., are only used at distant intervals, and that

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we are always, whether awake or asleep, consuming air, the great importance of this vital requisite in a pure condition may be seen by all.

Besides preventing the commission of nuisances, and providing for the removal of filth and the disposal of sewage, to preserve as far as practicable the purity of the atmosphere about us, it is highly important—it is imperatively necessary, indeed—to carry out complete systems of ventilation, to prevent the ingress of poisonous gases into houses from sewers, cesspools, etc., and to provide effectively for the escape or conveyance of impure air from buildings of every description, however it may have been contaminated—whether from without, through soil or waste pipes, or from within, by the products of respiration or of combustion, by exhalations from the bodies of persons, or from their dejections when sick, or from any other sources of pollution.

Many systems of ventilation have been invented and put more or less in operation, with varying success or benefit, accounts of which have been published in journals and other works that deal mainly with sanitary questions; but from all I can learn they are more or less defective or inefficient, and need to be improved, or to be superseded by something better.

In my report to the State Medical Society three years ago, on the subject of "Public Hygiene and State Medicine," I introduced a then recent invention, made by and patented to Messrs. Eastmond & Cottier, residents of the Pacific Coast. I presented it as a new and novel invention, comparatively inexpensive in its application, simple in design and construction, not liable to get out of order or to require costly repairs, and based upon scientific principles according to the laws of pneumatics. I described its construction and operation, and earnestly urged its general adoption; but, as is often the case with regard to the most valuable discoveries and inventions, my recommendations have not been acted upon to any considerable extent.

This neglect has arisen in a great measure from the fact that the invention has not been so clearly formulated, or illustrated by such well devised or skillfully drawn diagrams, as to enable builders to fully comprehend it and to carry it out accurately in construction. The consequence is, that it has not been fully understood and appreciated by the public, and hence they have not been sufficiently alive to its merits, or eager to avail themselves of its benefits.

In the meantime, however, it has been put in operation in many

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buildings, both public and private, in this State and in Oregon, its inventors and patentees not having attempted as yet to procure its adoption anywhere else. During the same time, too, they have obtained very many certificates from Boards of Health, medical societies, scientific men, Boards of Education, county and municipal authorities, and citizens of prominence and high character, all testifying strongly as to its efficiency, and the great satisfaction it has given wherever applied.

It was first applied to outside privies, then to inside water closets, and finally to parlors, sitting rooms, and sleeping apartments, the same principles being kept in view and being carried out alike, however, in every case, in its adaptation or construction in the several situations, and under the varying circumstances, of its application. The leading idea to be borne in mind, and to be rigidly carried out, is that no air shall be allowed to enter or reach the cesspool in the case of outside privies, or the hopper in the case of inside water closets, except through the openings in the seats, whereby a downward draught is created and maintained; nor must it be permitted to find its way into the air chambers or flues except by the same route, or else the draught up such flues would be inoperative to carry off the gases arising from the cesspool in the one case, or the sewer, through the soil pipes and hopper, in the other. So, in the case of parlors, sleeping apartments, halls, or any other house or place, besides water closets, air must not be allowed to enter the air chambers appropriated for the ventilation of such apartments, except through the openings made through the baseboard, or elsewhere, for the admission of foul air into such chambers, to be conveyed up to and discharged above the top of the roof. The impure air being conveyed thus from dwellings and other buildings by a gentle suction force leaves a partial vacuum, which is as gently filled by pure air, without creating any violent draught to cause discomfort or injury to health.

The striking advantage of this system over any other for the ventilation of either outside privies or inside water closets is, as intimated, that no air can enter the cesspool or hopper except through the opening in the seat; and consequently there is always a downward instead of an upward draught, thus preventing the possibility of the admission into the closet of any of the offensive and poisonous gases that are constantly arising from such receptacles of excremental matter, the sewer gases being included in such as may emanate from the hopper.

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In constructing the outside privy its connection with the vault must be accurate and close, so as not to allow the passage of air between them; and the floor, inner and outer walls, and the ceiling, must be substantially air tight, so that no air can enter the vault, or the chambers between the walls, except through the openings in the seats, as before stated, and then all gases arising from the vault would pass up, by suction force, through such chambers, into the attic and out at the opening in the comb of the roof, made for its escape into the open air. If desired, a shaft could be extended up from this opening in the comb so as to conduct the foul gases and vapors any preferred distance above it before they are allowed to escape. The effect of this plan when in operation over cesspools is to maintain such a strong and constant evaporation as to so lower or lessen their contents, or even to desiccate them, as to render their removal but seldom necessary, or altogether unnecessary, unless it were desired to remove them, when comparatively dry, to be used for fertilizing purposes.

In applying the system to inside water closets the same principles are observed and acted upon, and the downward draught through the opening in the seat is obtained. This is done by making the floor underneath the seat air tight, and continuing it back to the outer lining, care being taken also to make the filling between this floor and the soil pipe so close as to be impervious to air, and leaving an open space between the top of the hopper and the under surface of the seat, through which the gases and vapors from the sewers are drawn by a similar suction power, through like air chambers between the outer and inner walls of the building up to a point above the ceiling, and then under the roof between it and the plastering or sealing in the attic, if there be any such plastering or sealing, and thence through an opening at the comb, as in the other case. But if the attic be not plastered or sealed, a sufficient space may be sealed or boxed up between some of the rafters on either side of it and the roof, to conduct the contents of the air chambers to the proper point on the comb for their discharge. Besides the various traps and other contrivances that have been invented and applied to prevent the escape of sewer gases into buildings through water closets, within the last few years the custom has prevailed to a considerable degree of extending the soil pipe directly up in a straight line through the entire elevation of the building, and out at the top of it, the name of stench pipe being applied to it above its connection with the trap. This contrivance certainly takes off a large portion of the sewer gases, and thus

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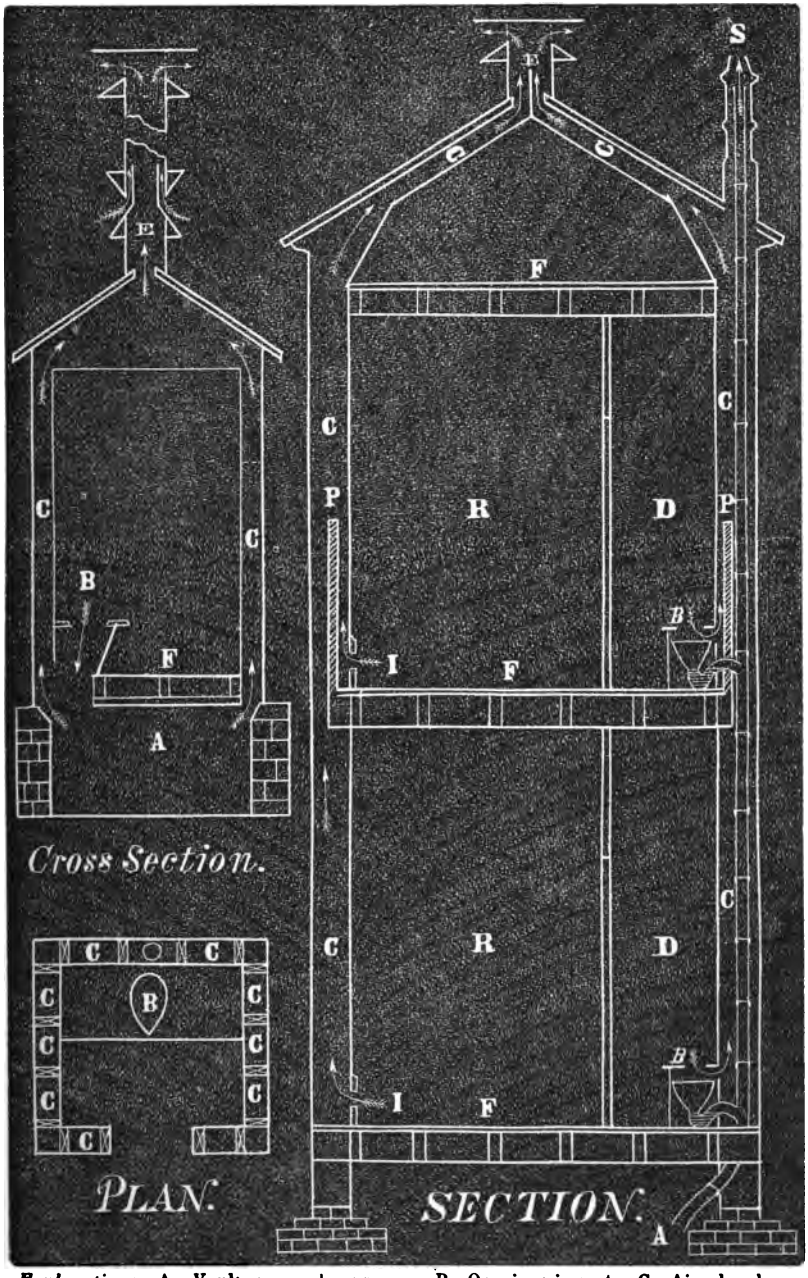
EASTMOND & COTTIER'S SYSTEM OF VENTILATION FOR DWELLINGS, HALLS, WATER CLOSETS, ETC.

(Patented January 11th, 1876.)



Explanation: A—Vault, cesspool, or sewer; B—Openings in seat; C—Air chambers, or flues; D—Inside water closets; E—Ventilating ejector; F—Floor; I—Opening in base board, near floor; P—Partition between studding, to prevent foul air entering into room from room underneath; S—Soil pipe extended above roof, (if desired).

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lessens their pressure and consequent liability to escape into the building through the water closet. But it just as certainly, I think, does not take off the whole of them, for a portion of them still escapes through the trap and hopper. Nor does it relieve the closet from the gases and offensive odors that arise from the trap and hopper at the time it is in use, nor, as a general thing, at other times, owing to the accumulations of fœcal matter that adhere tenaciously to them in despite of the free use of water in flushing.

The patentees of the Eastmond & Cottier system claim that their plan, if properly constructed, is fully equal to the removal of all gases that may come up through the soil pipe, without its being extended under the name of stench pipe, up to and through the roof of the building, in the manner stated, and that consequently such extension pipe might be safely dispensed with as being unnecessary. They have applied their plan to quite a number of inside water closets where there was no such stench pipe, and with such success in its operation as to give perfect satisfaction to persons for whom it was applied, as has been certified to by them in strong terms, accompanied with expressions of commendation of the system. But where persons insist upon having, or perfer to have, the stench pipe, no objection is raised to it, and I have had a plate prepared, to accompany this paper, that will clearly show such pipe, as well as the air chambers, and their relative position to each other. But it seems quite reasonable to my mind that the stench pipe might far better be dispensed with than could the system here favored, with its large air chambers in which is maintained a draught strong enough to fully control the gases in question, while the pipe is comparatively small, is without a strong draught, even when of uniform diameter throughout, and is liable to overflow at the trap. On the other hand, the Eastmond & Cottier system could not properly be dispensed with, because it performs functions that no other system does—the relief of the closet, hopper, and trap at the time of use, and the safe removal, in the manner explained, of all gases from the sewer that may elude all other contrivances designed to exclude them from the house. Another advantage that may be claimed for the system under consideration, as regards water closets, and which is possessed by no other, is the negative protection it affords to delicate persons, sensitive to cold, by reason of the absence of an up-draught through the seat; and this would apply particularly to women at a certain period, when the arrest of a function belonging exclusively to their peculiar

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economy might cause, as its arrest often does, serious, and possibly fatal, consequences. This suggestion is not original with me, but was made, as an original idea with each, by at least two experienced and eminent physicians who attached much importance to it. The suggestion is a sensible and practical one, and deserves to be respected and acted upon favorably as far as practicable. It is held that exposure to the usual up-draught alluded to often causes the injurious effects spoken of, and hence the importance of providing against so serious a contingency.

In applying the system to parlors, halls, or any other apartments, the spaces between the outer and inner walls are utilized as air chambers for conveying impure air from such rooms up to the top of the building for discharge into the open air. And here the same general plan is pursued to conduct the gases or impure air up through the air chambers, through the attic, and out at the comb, as described in reference to the management of gases from inside water closets. In that case it was enjoined that the flooring should be extended back under the seat to the outer lining, and made air-tight, not only in its joints but in its fittings about the soil pipe also, that no air should be allowed to enter the air chambers except through the opening in the seat and from the sewer through the soil pipe and hopper. And so, in ventilating dwellings, etc., the flooring must be extended back to the outer wall and made air-tight between such outer wall and the baseboard, not only in its joints but in its connection with the outer wall also, so that no air can enter the air chambers from below, but only from the room to be ventilated through the openings made in the baseboard, which are finished with ornamental gratings, designed to allow the impure air to enter such air chambers, to be carried out of the building, according to the plan explained. This process of continuous removal of such impure air operates to cause a partial vacuum in such room, to be as continously filled or supplied with fresh air from without. So, it may be perceived that the principle and *modus operandi* of this invention are the same in all cases, wherever applied, and that it is applicable to all buildings or places requiring ventilation, not excepting ships, steamers, and railroad cars. To the outlets through the comb or elsewhere on the roof a suction ventilator might often be applied with advantage, because of its tendency to increase the draught up the air chambers or flues.

The ventilation of sewers is also important, and is a subject that has of late years attracted much attention and led to the invention

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of many plans to effect it, all of which have failed, more or less, to accomplish the end aimed at. One of these consists in the perforation of the covers of the manholes communicating with the sewers, whereby the gases may escape from them into the streets, and thus remove the great pressure caused by their being pent up in those channels and made more liable in consequence to find their way into houses through any connecting pipe. But this plan of perforation is objectionable, for the reason that a nuisance is thereby created by the discharge into the streets of offensive and poisonous gases that must necessarily be inhaled by all who may pass within their range.

Recently in Napa City such nuisance, created in the manner explained, became so great as to be intolerable, and to cause a strong clamor to arise for its abatement. The consequence was that the system under review was applied with perfectly satisfactory results. The perforations in the manhole covers were closed, a pipe of sufficient size was connected with the sewer near its head and thence conducted underground, under the sidewalk, and up through a neighboring house into an air chamber. Through this pipe the sewer-gases were conveyed into the air chamber mentioned, and from that through an opening in the highest point of the roof. At this point of opening and discharge through the roof a stationary suction ventilator, recently invented by Mr. Cottier, was also placed, and so affected the currents of air impinging or acting upon it as to increase considerably the strength of the upward draught through the pipe. The effect of the new arrangement was to remove the evil complained of, and to give entire satisfaction, as was certified to by the city authorities, and given publicity to by the local press. And the Trustees of Sacramento, after investigation and due consideration of the facts just stated, have made arrangements to have the sewers of their city ventilated according to the same plan.

This system was brought to my attention soon after its invention, in 1876, and as soon as I had examined it carefully and discovered and comprehended the principle upon which it acts, I became convinced of its novelty and merit; and as time, observation, and accumulated evidence have but confirmed me in earlier convictions, I am not prepared to retract anything said by me in its favor three years ago, but, on the other hand, I now feel it to be a duty to recommend it still more highly, and to urge more strongly than ever upon sanitarians and others its general adoption. I can do this the more unreservedly now because my conceptions as to the peculiar mode and

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scope of its action are clearer than heretofore, and my convictions as to its worth and general adaptability to all places needing ventilation are at present stronger than ever.

In describing the mechanism and action of this system I have gone into tedious details, preferring to run the risk of being guilty of prolixity or tautology rather than to allow any obscurity to exist that might lead to misunderstanding and a consequent failure to construct the work, if attempted, in a manner to insure the efficiency of the invention.

I will also say at this point, that in the statement of facts or of settled opinions, as obtained from various authorities or writers, I have in some instances, to a limited extent, adopted the language of such authors or writers, when found to be concise and explicit, without giving any special credit, for the reason that such careful acknowledgment would increase the length of my paper, and that, besides, neither common usage nor any exacting rule exists to demand of me, under the circumstances, the opposite course to that pursued.

And now, although this paper has already been extended to an unreasonable extent, and far beyond my original purpose, I realize that it would seem quite incomplete unless I should say something in regard to the agencies or instrumentalities best calculated to remove the many and grave evils that have been shown to exist, and to give effect to the suggestions of reform or of remedy that have been made by able investigators and wise advisers in reference to sanitary maters that profoundly concern the public health, as well as the general well being of every community.

Government is understood to be instituted for the protection and welfare of man; and while it may protect him in his material interests—in the acquisition and enjoyment of property—the fact must not be overlooked that a higher function is to protect him in his "life, liberty, and the pursuit of happiness," and that to protect him in his life is not only to protect him from the hand of the assassin, but also against the dread pestilence, whether it come in the shape of a violent and fatal epidemic that may invade a country from abroad, or as the insidious domestic foe that may lurk in his food, in the water he may consume, or in the air he may breathe, for in all these the germs of disease may revel and multiply, and through such ingesta find a lodgment in the system of the unsuspecting victim. Isolated individuals or unorganized communities can do but little to protect themselves against such assailants, and it is only Government—National, State,

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or municipal, the embodied representative of the people, invested with authority and power, and possessed of the requisite means to carry out or enforce its designs—that can, with the consent and co-operation of all, contend successfully against the gigantic and widely pervading insanitary evils that menace us, and finally solve, through the instrumentality and aid of science and its faithful votaries, many difficult hygienic problems that have hitherto baffled the efforts of the ablest and the best of those who have attempted their solution.

Governments and peoples have shown commendable zeal and liberality in the cause of public hygiene, and have expended vast sums of money in its interest, with the effect of reducing the rate of mortality, in many instances, from twenty-five to fifty per cent; but yet many of their efforts have been ill-directed, and their expenditures comparatively fruitless, for the reason that more accurate knowledge has been needed, and better, more complete, and more efficient systems have been wanting to accomplish the grand end aimed at. To insure better success, there must be more general enlightenment, freer conferences, and more harmonious and cordial co-operation on such subjects, tending to result in more perfect and efficient sanitary systems than have yet been devised. To this end there should be held, at proper intervals, International, National, and State Congresses of Hygiene, for general consultation and discussion, and for the improvement or perfection of sanitary laws and comprehensive arrangements and regulations for protection against the approaches or origin of disease, and to preserve, by every possible foresight and well-contrived schemes, the public health everywhere.

The cause here considered is a common one to the whole human race, and all should realize that fact, and act in cordial co-operation one with another to advance its claims and purposes. As important and indispensable agencies in this work there must be an ample supply of highly educated and practical scientific men, thoroughly versed in mathematics, natural philosophy, and chemistry, in all their branches or departments, and fully capable, in one position or another, to work out any mathematical problem, to conduct any survey, to perform any engineering duty, to effect any analysis, or to employ the microscope skillfully and reliably; for persons fully competent to perform well all such special duties as are here indicated, would be absolutely required in connection with any comprehensive and efficient hygienic system that would probably be agreed upon by

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any such congresses or conferences as have been alluded to. And, in accordance with the dictates of a wise foresight, the brightest youths and the ablest young men, everywhere, should, in large numbers, be thoroughly taught in the sciences, to the end that such qualified persons, when needed, may be had at all times to fill the many offices that must be provided for in the complete system that should be perfected in all civilized countries for the attainment of the noble purpose of preserving human health, not only by so far teaching man its laws, and his duty to himself, as to enable him to protect himself against his own suicidal acts; but to provide, at public expense, sufficient numbers of competent and faithful officers to give requisite instruction in every locality where required, and to see well that no grave violation of sanitary law, or disregard of scientific principle relating to hygiene shall occur within the range of their respective jurisdictions or spheres of duty.

And to give vitality and the greatest possible effect to the laws, systems, and agencies that may be deemed best calculated to accomplish the grand hygienic aim in view, the Government, the State, or the governing power, as the servants of the people, and sustained by an enlightened public sentiment, must be broad and comprehensive in their views, bold and firm in purpose, and prompt and decisive in action, not stopping to count the necessary pecuniary cost, but being scrupulously honest and faithful in disbursement, down to the smallest item or detail. Besides a State Board of Health and the numerous municipal Boards of Health, which are advisory bodies, serving without compensation, true economy, and the best guaranty of efficiency and success in sanitary affairs will consist in provision being made for an ample supply, as before stated, to fill all requisite offices, of men of scientific attainments, experience, strict integrity, zeal, industry, and every other quality to fit them eminently for the duties to be performed, all to be so adequately paid out of the public treasury as to enable them to devote their whole time and energies to the public service. At the same time the system should be simplified as much as possible, and as few offices created as would suffice to insure efficiency, under the supposition that each officer would labor industriously and faithfully, at all proper times, in the performance of his full duty. It is not wise to have a multiplicity of officers, at moderate compensation, and having but little to do. Far better to have as few as practicable, require full service of all, and pay each enough to satisfy him fully and to keep him contented in his place.

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The question of water supply is one of great importance, and in every State there should be an able commission to consider and regulate the supply, distribution, and conservancy of water in all details, thus embracing and controlling, according to law, the whole question. Under their direction there should be State hydrogeological and sanitary surveys, to ascertain accurately the sources and character of water supply, and to investigate and give counsel relating to the subjects of drainage, sewerage, the planting of forests—particularly of the eucalyptus—and of any other subject or matter tending to have influence upon public health. They should not only consider and deal with water supply and distribution, but with river conservancy, river pollution, and the disposal of sewage—all germane to the same matter, and intimately connected with each other. As aids to such a central State Commission, there should be Health Officers, Health Inspectors, Sanitary Engineers and Surveyors, Analytical Chemists, and Microscopists, and such other subordinate officers as might be found to be necessary to insure due efficiency in all the departments of the general system.

The whole State should be governed by uniform sanitary laws, and be so districted and officered that no portion, whether urban or rural, would be without proper and efficient sanitary supervision. Under such arrangement the water sheds of the principal rivers would most likely be looked to primarily as the natural boundaries of the different districts, special arrangements being made, where necessary, for particular towns. The prevailing tendency is for our rivers, as for all other rivers, as a rule, through the length and breadth of the land, to be converted into open receptacles of fœcal matter and of every species of filth or sewage, but such misuse, so disastrous in its effects, should not be permitted or tolerated. In no case should sewage from inhabited towns or dwellings be allowed, unchecked and unpurified, to flow into watercourses, as though they were the natural outlets and outfalls for systems of sewerage. Nor is any process of purification sufficiently effective to be relied on to render such sewage innoxious; and the safer plan is, therefore, never to permit it to be discharged into the streams. The average specimen of water from a water supply is not a fair sample to be considered in deciding upon its fitness for use, but rather the most impure that may be furnished at any time. The public should, indeed, insist on the practical carrying out of the true principle, as laid down by Mr. John Simon, viz: "It ought to be an absolute condition for a public water supply that it should be uncontaminable by drainage."

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It has become to be a well settled opinion that all cities or towns of much size should own and control the water works designed to supply them with water for general purposes, for then there would be far more certainty that each place would have a more constant and abundant supply of pure water, and at a much less cost to consumers than if furnished by private or incorporated companies. Such companies are not always to be relied on to furnish a pure quality of water, and, besides, they are often prone to exact prices for the supply that give them immense profits on their investments, while the rate is most onerous to the consumers. These facts have been signally shown and exemplified in some cities that might be named.

As auxiliaries in the work of insuring the requisite supply of pure water and air to any community, and of promoting generally human health, proper systems of drainage, sewerage, and ventilation are, as before intimated, of the highest importance, as are also the designs or plans, or general arrangements, observed in the construction of dwellings and other buildings, including the plumbing work used in their drainage or ventilation; and to realize the benefits of these systems it is indispensable, or imperatively necessary, that there should be a sufficient number, as stated, of all the officers that have been enumerated. The sanitary engineer should not only plan systems of drainage and sewerage, but have a voice in the selection and laying out of town sites at the founding of new places, at which time such systems should be adopted. He should also co-operate with the architect in supervising the work of draining and ventilating buildings, and, afterwards, he should inspect, from time to time, all plumbing work, that no fault of original construction, or derangement subsequently arising, shall cause, unsuspected, serious damage to health.

The analytical chemist is most useful in analyzing food, liquors, wines, or drugs suspected to have been adulterated, as well as water or air polluted by any deleterious material; and the microscopist may practice his art in the examination of the same articles, to settle the question of their quality as to purity or impurity, and to determine, as far as practicable, the nature of any contamination where such may exist.

Having here made many suggestions to the public at large, to be taken and treated at their worth only, it would be superfluous to undertake to forecast more in detail what, in my opinion, should be done, as such systems as may be required or deemed appropriate any-

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where must be framed and put in operation by Governments or States, possibly incited thereto or assisted therein by scientific men who are sanitarians by natural impulse or choice, and who deserve to be classed among the greatest benefactors of mankind.

Such systems would contemplate and require large expenditures of treasure, but this should not deter any public authority from entering upon any necessary undertaking having such a proper object in view. It would be but the expenditure by the people of their own means for their own protection, including that of the dependent and helpless ones whose special care should be favored by every truly manly and generous spirit, regardless, in a great measure, of his own personal comfort or welfare. And as a healthy and vigorous population is regarded as constituting the true wealth of a nation, it is the highest duty of Government to protect and to preserve the health of its people by all the means and agencies that can be commanded, regardless of pecuniary outlay. Many millions of dollars, in some cases billions, are expended in the prosecution of sanguinary wars, public or civil, foreign or domestic, based upon some fancied wrong, or upon a principle or a technicality, or, yet, to crush out or to sustain a dynasty; and such wars, attended with such sacrifices, and however resulting, are tolerated, acquiesced in, and sustained alike by both the victors and the vanquished.

In view of such facts, it is not reasonable to doubt the readiness of any civilized people, when made sensible of the real issue, and of the momentous consequences involved, to submit cheerfully to any amount of taxation that might be necessary to secure to them pure food, pure water, and pure air, and to protect themselves and families from the awful scourge of pestilential disease, with its sad concomitants and sequences of suffering and mortality.

It is encouraging that our Federal Government has recognized the importance of Public Hygiene, and that a National Board of Health has been established, to counsel and co-operate with State Boards of Health, as well as with Sanitary Boards, Associations, and Congresses in other countries. And a further encouragement is the fact that Congress has provided for representation from this country in an International Conference, in which all countries subject to cholera are invited to participate.

In this State it is to be hoped that our public school system, at the head of which is the State University, will be utilized for the scientific and thorough education of an ample corps of scientists to fill all

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the places that may be provided for in the comprehensive and complete sanitary system that should be established here without further delay. Now is the time to inaugurate such a system, when the country is comparatively new, and before certain vicious customs, previously mentioned, too prevalent everywhere, and most insanitary in every respect, shall have been firmly saddled or entailed upon it—before our noble rivers, besides being filled with mining debris and thereby rendered innavigable, shall be fully converted, by one of these bad customs, into common sewers, the receptacles of every species of foulness, whereby their waters shall be made unfit not only for the domestic use of man but even for the habitation or the propagation of fishes, an evil that is now rapidly increasing in magnitude. Then, to recapitulate further, the present water supply is, as a general thing, faulty and impure, and is constantly becoming worse, when wise action could easily render it good everywhere. And so, as to drainage, sewerage, the disposal of sewage, and the construction and ventilation of buildings, there are imperfections and faults that should be corrected as speedily as practicable.

We should, therefore, look and appeal to the next Legislature, with the co-operation of our State and municipal Boards of Health, and all others taking an interest in sanitary matters, for the initiation, by bold and decisive legislative action, of such work in this direction as would strongly tend to produce soon results highly creditable to the State, and signally beneficial to us as a people.

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REPORT ON GYNECOLOGY.

BY WILLIAM H. MAYS, M. D.

The areolar tissue of the pelvis may be said to be more prone to inflammation than any other tissue of the body. This fact, of so much importance in gynecology, is liable to be overlooked. The areolar or cellular tissue forms what might be called the "padding" of the pelvis, cushioning its organs and maintaining their resiliency. It constitutes the substance of the broad ligaments, invests the uterus in its lower two thirds, spreads to the sides of the vagina, rectum, and bladder, and is continued into the iliac fossæ, acting throughout as a carrier of the blood vessels, nerves, and lymphatics to and from the pelvic organs. It will be seen that inflammation of this tissue is not simply an evil in itself, but entails interference in the nervation and blood supply of other structures. Yet, pelvic cellulitis, next to cervical erosion, is the most common disorder met with by gynecologists. Dr. Emmet writes:

"I do not exaggerate when I claim that this disease is by far the most important one with which woman is afflicted. Practitioners habitually neglect to recognize it, or they do not appreciate its importance, if by accident it be detected. Many of the disappointments and bad results complained of may be attributed to the existence of unrecognized cellulitis. A great advancement in the treatment of diseases of women will be made, whenever practitioners become as impressed with the significance of cellulitis as to apprehend its existence in every case. The successful operator will be he who is always on the lookout for cellulitis, or who is taking measures to guard against its occurrence."

These emphatic words of so prominent an authority deserve to be taken deeply to heart by practitioners generally. Let us look at a few of the ways in which this trouble is set up. A physician inserts a sponge tent for the purpose of dilating the uterine canal. On removing it the mucous villi caught in the interstices of the sponge are torn off, and septic points created. A second tent is inserted to complete the dilation, and septic absorption ensues, with pelvic cellu-

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litis as a rapid sequel. Again, a caustic application is made to a catarrhal cervix. The patient returns in two or three days, and the application is repeated, in spite of a pronounced vaginal puffiness around the cervix, which should emphatically give us pause. Next day the vaginal roof is tense with cellulitic engorgement. These are instances were the blame may be laid at the door of the physician himself. Again, consider the amount of cellulitis that is lighted up by pessaries. Useful as they are, indispensable as a mechanical support often is to the uterus, I am convinced that in the totality more harm is done by pessaries than good. Not that there is a lack of skill manifested in their application, but from a non-appreciation of the often extremely irascible nature of the pelvic cellular tissue on which these instruments depend for their support and leverage.

But there is a prolific cause for this inflammation, which seems to have been overlooked by writers on the subject. I allude to the routine use of the bivalve speculum. For general office work the self-retaining bivalve speculum has routed all others from the field; that of Higbee enjoying, perhaps, a surplus of favor. The Higbee is certainly a great advance upon the old Ferguson tubular, but it should be remembered that this speculum retains itself in position by putting the vagina to stretch. On screwing open the instrument, its anterior blade is projected remorselessly upward against the triangular block of cellular tissue lying between the bladder and the uterus, from pressure upon which space or block it gains its *point d'appui*. Given an "irritable uterus" (a favorite term of the elder Meigs, but which has been allowed to drop out of use,) and it cannot be doubted that the frequent use of the speculum is a source of much injury and bruising to the pelvic connective tissue. Under no circumstances should the speculum be used continuously. Under no circumstances should it be inserted until the examining finger has determined beforehand the non-existence of cellulitic hardness. The same caution applies to the Sims speculum, for no appliance is so good but what it may be abused. Used as it should be, simply as a perineal retractor, it is by far the safest and best of all speculums, but I have myself, more than once, found evidence of a localized post-uterine cellulitis set up by its undue or improper use. Cases are constantly arising, in gynecological practice, where to desist entirely from the use of the speculum for a fortnight is the very best treatment that can be instituted. If local treatment must be continued meanwhile, it will be found that by using the forefinger of the left hand as a

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perineal retractor, wads of cotton prepared with glycerine and bismuth may be applied to the os quite readily.

The operation for lacerated cervix uteri, known as Emmet's operation, or hystero-trachelorrhaphy, has become of late a recognized, it might be said a popular, procedure. During labor the os uteri is often torn to a greater or less degree; sometimes so extensively as to involve to whole length of the cervix. Should nature fail to unite these rent surfaces, a train of evils may be set up, resulting in the confirmed invalidism of the patient. The vaginal portion will present the appearance of having been divided into halves or flaps, the downward pressure of the womb causes these flaps to roll outward on the floor of the vagina, the everted membrane erodes and becomes the subject of cystic disease, nervous disturbances set in, and the process of involution is seriously impeded. The distinguished Emmet, the first to recognize and describe this lesion, draws a vivid picture of its ill effects, going so far as to include epithelioma among its possible sequels. The os after this accident may present a bifid or a stellate appearanee, depending upon the direction of the rupture or ruptures. But in the vast preponderance of instances the laceration occurs at the left angle of the os; so far as my observation goes, confirmed by that of my preceptor, Dr. Beverly Cole, and others to whom I have spoken on the subject. This has been ascribed to the extra distension set up at that angle by pressure of the vertex in the obstetrical first position. If I may venture an opinion, however, I would be inclined to regard it as nothing more than a manifestation of that tendency to leftsidedness observable in gynecic disorders generally. The left is woman's vulnerable side. The left iliac region, it need hardly be said, is far more commonly the seat of tenderness than the right. Cervical trouble reflects pain to the left groin. The left ovary is more prone to cystic disease than its mate. Left lateral obliquity of the womb is more common than the right. Cellulitic engorgement, pelvic abscess, fallopian fetation choose by preference the left side more often than the right. The explanation of this tendency involves the question of the predominance of the right side over the left throughout the human race, a subject upon which it will not be profitable now to enter.

The operation for the relief of this train of evils, namely: the denusion and stitching together of the sundered surfaces, has reflected unstinted credit on its author, Dr. T. A. Emmet, and through him upon American gynecology. His simple method of demonstrating a

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ruptured cervix by drawing together the lips with two tenaculums was hailed by Peaslee as a master-stroke of genius, a tribute the justice of which no one will be found to dispute. But I am afraid the disposition is just now to a too frequent resort to this serious operation. It is my conviction, and I know that there are many others who think as I do, that this procedure so useful in its place, is being done far more often than there is any need for, and that there are many who are beginning to look upon it as a panacea for nearly all the forms of cervical disease. All new discoveries have to pass through what might be called an exaggeration period before they at length settle down to their proper level. So with the operation in question. There is something so simple and direct about it as to make it almost captivating to the surgeon's eye. Here is Nature at fault as usual, and art coming triumphantly to her relief with a neat plastic operation. Could anything be plainer? One writer in his enthusiasm advises the measure even after the ordinary slight lacerations of labor; which is simply throwing overboard all faith in the restorative powers of nature. Proceeding on such a rule, nine tenths of parous women would have to be made the subjects of surgical operation. Let it be remembered that a certain amount of laceration accompanies every labor, whether normal or abnormal. Let it be remembered too that the cervixes of all women who have borne children present evidences of puerperal tearing; all the way from slight irregularities of the os to clefts extending deep into its structure. Is there any one of us who has not again and again found such a condition co-existing with perfect uterine health? A lady is now under my notice whose cervix, torn at an instrumental delivery four years ago, presents the appearance of three distinct divisions or lobes, with sulci between extending down to the vaginal junction. She had a good getting-up, and has since enjoyed good gynecic health. Imagine this lady overtaken with a transient cervical catarrh, and how many practitioners, instead of proceeding to cure it by patient topical work, would at once make her the victim of a severe operation? Yet I maintain that this would be little short of malpractice. An ordinary endometritis of the parous uterus may present to us a tumefied cervix with its inner surface bulging at the point of least resistance and lips widely separated. But this must not be construed into an indication for Emmet's operation, not even though the experimentum crucis of Emmet may be applied, namely: the everted lips brought together by tenaculums and the diseased membrane almost hidden behind the

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approximated vaginal walls. Again and again have I marveled at the amount of contraction taking place after disappearance of the endometritis, in cases where at the commencement of treatment I thought trachelorrhaphy would certainly have to be resorted to.

Emmet's operation, no matter how skillfully performed, is always one of great gravity, and sometimes instead of success terminates in the disastrous mutilation of the patient. I have known instances where the forcible dragging of the uterus toward the vulva during the operation, so bruised and strained the peri-uterine structures as to inflict upon the woman an intractable sub-acute cellulitis that threatens to overshadow the rest of her life. I do not pretend to intimate that the operation is usually attended with this amount of violence, but it is well known that the stitches cannot be passed without a certain amount of straining of the pelvic cellular tissue—the tissue which of all others is the most delicate, the most sensitive, the readiest to inflame, the quickest to resent anything like rough treament. There are also the dangers of cutting into or puncturing the peritoneum, to say nothing of the chances of the failure of the denuded surfaces to unite, in which the last state would be far worse than the first.

As far as my own practice goes, I must admit that at first I was much taken with the operation, and performed it more often in former years than of late. There are many others who reckon their trachelorrhaphies in a similar declining ratio, although never ceasing to regard it as one of the most valuable contributions ever made to gynecology. Dr. Atthill, of Dublin, referring two years ago to the increasing popularity of this procedure, deplored the tendency on this side of the Atlantic to "lose sight of every therapeutic application except the knife." Turning to New York, I find Dr. Fordyce Barker testifying that "many cases of laceration get well without surgical interference." Dr. A. Jacobi claims that "puerperal lesions of this class do not necessarily demand operation;" while Dr. D. Gaillard Thomas cautions in emphatic terms against attaching too much importance to cervical lacerations.

We live and think in cycles. Even fashion is subject to this law, and fashions in medicine have always characterized our science. The fashion of sewing up the uterus as an ordinary therapeutic measure may be expected to have its day, and then its true worth will be recognized—that of a most valuable, but serious and not often demanded, operation.

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REPORT ON OPHTHALMOLOGY.

BY N. J. MARTINACHE, M. D., CHAIRMAN.

In meetings of this kind I need no excuse for omitting a long introduction, and I shall therefore at once communicate that which I have thought may interest my hearers.

Cornea-grafting was attempted many years ago, but all the cases in which it was tried resulted in failure. Recently, however, some encouraging results have been obtained. When loss of transparency of the cornea, consequent upon previous inflammation, is of itself the cause of blindness, various methods have been tried, but without success, to replace the opaque cornea by a transparent one, so as to restore the sight.

Dr. J. R. Wolfe, after much clinical researches and numerous laboratory experiments, presents the following propositions:

1. A transplanted cornea may preserve its vitality and transparency when borrowed from a human eye recently enucleated.

2. Every incision in the cornea must be neat; any tearing or irregularity is a cause of suppuration; the grafting measures must be exactly made.

3. The operation must be performed without injury to the underlying tissues, which is impossible in attempting to transplant the entire cornea, for, as soon as it is removed, the lens and vitreous humor escape, and hemorrhage takes place; and should the new cornea retain its transparency, blindness would nevertheless be unavoidable. It is not necessary to remove the whole of the cornea; the chances of vitality for the transplanted flap are in inverse ratio to its dimensions. A small cornea flap is sufficient to restore the sight, and a conjunctival flap removed with it will maintain the corneal one in place and secure its vitality, even when the corneal sections are not immediately united.

Obs. J. P.—Forty years of age. Serious injuries to the eyes, caused by an explosion which occurred two years before. Right eye lost; left eye tattooed with grains of powder; margin of the cornea covered with a false membrane, the rest of the cornea completely opaque, with central perforation and protrusion of the iris. The light

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could be followed in every direction, and the perception being good, the operation was decided on.

The first subject having been chloroformed, a conjunctival flap was detached on each side of the cornea, turned over on it, and the eye was enucleated. A corneal flap was removed with that of the conjunctiva and placed in tepid water.

The second subject was then put under chloroform, a conjunctivo-corneal flap of the same size as the other was removed, the transplantation made, and the flap secured by sutures in the conjunctiva.

Union took place by first intention, and on the fifth day the patient could distinguish and count objects; on the ninth day he could count fingers and distinguish a ring on the physician's finger. A month after the operation the patient could distinguish the difference between the color of a sovereign and that of a shilling.

The important problem of transplantation of the cornea is only to be solved by the strictest attention to the details of the *modus operandi*.

In a case operated on by Durr, the cornea became hazy two years afterwards, but the patient could still read Jæger's No. 12.

As the author of the treatment of ulcers of the cornea by the actual cautery, I am happy to be able to report that my method, with galvano-cautery or thermo-cautery has been employed by a great number of physicians, and it has been extended to the treatment of conical cornea by Gayet of Lyons. With one patient he employed Græfe's method, on one side, and the visual power increased from $\frac{1}{60}$ to $\frac{1}{20}$.

The other side was treated by the actual cautery, and the increase was from $\frac{1}{36}$ to $\frac{1}{6}$ or about $\frac{1}{10}$ in favor of the actual cautery.

I have thus far treated about fifty cases of ulcers of the cornea with perfect success by the actual cautery; cases which had proved to be incurable by other means.

Græfe's method of operating for cataract is losing ground, and that of Daviel is again in favor. In this, as in most other maladies, there is no system which is applicable to every case, and the intelligent surgeon will operate with or without iridectomy, according to the size of the nucleus of the cataract.

I have lately observed a lesion of the cornea, which to my knowledge has not been mentioned before. It is a rupture of the deep layers of the cornea, with preservation of the superficial and almost of the epithelial ones, caused by the impact of a piece of wood which the patient was chopping.

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In other parts of the body lesions of deep organs with preservation of continuity of the skin are of more common occurrence.

I divided the external layer, and removed a large hernia of the iris. The wound healed in a short time.

An intermittent paralysis of accommodation came under my notice a few months ago. The vision at a distance was good, but the patient could not read. After making the diagnosis, I ordered sulphate of quinine, which rapidly restored the power of accommodation. Other means had previously been tried, without effect.

Another curious case was that of a severe intermittent neuralgia of the whole eye. The symptoms were pain at irregular periods, but especially at night, and general congestion of the conjunctiva, not indicative of any special inflammation.

A purgative was administered, and large doses of quinine sulphate given afterwards. The pain ceased and the patient recovered without any other treatment.

The object of a new operation called enervation or neurotomy, is to avoid enucleation of the eye-ball in some cases. It consists in the simultaneous section of the ciliary nerves and optic nerve behind the eye-ball. It was first proposed by Rondeau, in 1866, and to him belongs the honor of having had the first idea of the optico-ciliary section, and its application to the prevention of sympathetic opthalmia.

In 1876 Boucheron proved that enervation is not only capable of interrupting the nervous continuity between the two eyes, but can be performed without troubling the nutrition of the eye-ball; and he was the first to perform the operation on a patient, although without success.

In 1877 Scholer performed several successful operations, and Dianouxe practiced the operation, detaching the rectus extermus, and gave it the name enervation.

In all, thirty-six cases have been reported by Abadie, Meyer, Chrisholmn, and others, as successful.

The operation of enervation may be practiced when a lost eye is a source of trouble, by causing pain or inflammation, even in the absence of sympathetic ophthalmia; or when a lost eye which is absolutely painless determines sympathetic symptoms in the other, which sometimes happens.

The operation has three stages: 1—External strabotomy; 2—Section of the optic nerve; 3—Section of the ciliary nerves, after bringing forward the posterior part of the eye-ball.

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REPORT OF COMMITTEE ON DISEASES OF WOMEN AND CHILDREN.

BY O. O. BURGESS, M. D.

The reports of your Committees on Obstetrics and Gynecology leave little to be said upon the subject of Diseases of Women.

I shall invite your attention, however, to a brief consideration of a few inquiries regarding certain tumors of the ovary, which seem to me to be invested with a good deal of practical importance, and to which my attention has been especially attracted by cases recently under observation. The first questions will relate to

COLLOID CYSTOMA OF THE OVARY,

And will be brought out in the following brief sketch of the history of a case which has lately occurred in my own practice: On the fourteenth of October last, I was called in consultation to see a case of abdominal dropsy, with a view to paracentesis. The patient was a lady 54 years of age, with a previous history of fairly good health. No symptoms of organic disease likely to produce ascitic accumulation were apparent, and her present suffering seemed to be due simply to the enormous distension of the abdomen. There were points, however, in the history of the case which, together with the absence of other causes for the dropsy, led to a suspicion of the existence of an abdominal tumor. But no evidence of the fact could be obtained by physical examination, until after the withdrawal of six gallons of ascitic fluid by tapping, when it was easy to make out a multilocular tumor of the right ovary. It was movable, elastic to the feel, and gave a somewhat obscure sense of fluctuation—as of a cyst over-distended with fluid. It extended to within a couple of inches of the umbilicus, and, as nearly as we could learn, had been produced within the last three years. The ascitic fluid obtained was of the usual light straw color, and was not bloody.

A moderate attack of peritonitis followed the tapping, but seemed to yield readily to the treatment adopted by the physician in attend-

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ance. It was accompanied, however, by a rapid re-accumulation of ascitic fluid, so that in less than two months she was as full as ever. At this time, when I saw her again, her girth at the umbilicus was 56 inches, her feet and legs were swollen—in fact, her whole body was œdematous, her appetite was gone, and her strength was rapidly giving way under the sufferings she endured. Under these circumstances she readily consented to an operation for the removal of the tumor, which was done on the fourteenth of December, just two months after the tapping. After evacuation of the ascitic fluid, the tumor came into view, presenting the usual glistening, pearly white color and smooth surface of multilocular ovarian cysts. No adhesions were found on sweeping my hand around it, except at one point, posteriorly, where there was slight resistance which yielded as readily as a slender cobweb. Puncture of the largest cyst with a large trocar yielded no fluid, and it soon became apparent that the whole mass was filled with colloid material. The cyst walls, also, were so soft and friable as to give way everywhere under the fingers during the manipulation necessary to removal. The pedicle was secured in two sections by carbolized, silk ligatures, and dropped. A small simple cyst of the left ovary, with fluid contents, was now discovered and removed, as also a very small subserous fibroid of the uterus—both by ligature. The "toilet" of the abdomen was made as complete as was practicable, although some portions of the spilled contents of the tumor were unavoidably left behind. The peritoneum presented no evidences of malignant disease, but was much softened by chronic inflammation. At one point troublesome oozing of blood was found, coming from a denuded patch of softened tissue involving a portion of the mesentery and the contiguous intestinal surface. This furnished a most disagreeable suggestion of malignant degeneration; but it was probably the seat of the adhesions spoken of above, which had given way so easily because of inflammatory softening of the peritoneal surface. The operation was done under full antiseptic precautions, and the patient recovered without an untoward symptom. She remains well at the present writing—more than four months after the operation.

The question to which I wish more especially to call your attention in connection with this case, is as to the malignancy or non-malignancy of the tumor. To summarize briefly the leading points: we have, in a patient 54 years of age, a large ascitic accumulation coexistent with a moderate sized ovarian tumor; a peritonitis that may

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have been due to the irritation of malignant disease; a raw and bleeding patch of softened tissue; a softened, degenerate condition of the tumor walls; and, finally, the colloid contents of the tumor. On the other hand, we have no semblance of cancerous cachexia; no pain, and no evidence of inflammation until directly after the tapping; no blood in the ascitic fluid; no nodular condition of the cyst walls; no apparent malignant disease of the peritoneum or other structures; and finally the excellent condition of the patient's health four months after the operation.

Dr. Peaslee speaks of a large ascitic accumulation rapidly formed while the tumor is still very small, as one of the most important signs of malignant disease, although not patho gnomonic. And I notice in looking over Mr. Spencer Wells's tables of exploratory incisions and incomplete operations, that out of ten cases in which the presence of ascitic or peritoneal fluids is noted, eight were cases of evident or suspected malignant disease, while the other two were cases of large uterine fibroids. Dr. Tait lays great stress upon the bloody character of ascitic fluid when associated with cancerous tumors, and upon the co-existence of malignant peritoneal disease. It seems quite evident to me that any abdominal tumor may set up peritoneal irritation or inflammation, and thus induce ascitic effusion. And it is not difficult to conceive of conditions, aside from malignant disease, which would furnish blood corpuscles in such fluids—notably in cases of papillomatous outgrowths, which are now considered by such authors as Peaslee, Emmet, Thomas, and others as not necessarily malignant. As a sign of malignant disease, therefore, we may look upon ascitic accumulation as of no importance except when associated with other signs that are less equivocal.

In the case under consideration the peritoneal inflammation seems to have been set up by the tapping, and the softening of the cyst walls may well have been produced by the processes of simple inflammation. We come now to a consideration of the colloid contents of the tumor.

Up to a comparatively recent date the term *colloid* was always used to designate a variety of cancer. But, following the advance of pathological science, it has been restricted by most of the later writers to its definite meaning of "a gelatinous substance," and nothing more. It may occur in growths that are cancerous, and in those that are not cancerous. Thus we may have, as Virchow states, colloid fibroma, colloid sarcoma, colloid adenoma, as well as colloid carcinoma.

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The process of colloid degeneration is not intrinsically malignant. But this view, as applied to proliferating cystoma of the ovary, is not universally accepted, and we find so high an authority as Mr. Spencer Wells still maintaining that colloid degeneration is a cancerous condition, or "a sort of intermediate form of disease having intimate alliances and resemblances on the one hand with the innocent single cysts, and on the other often being intermingled and confused with the most rapidly spreading and malignant cancer growths." Cruveilhier, whose admirable illustration of the appearances presented by the vesicular cyst, or so-called alveolar cancer, is so well known, insists upon its malignancy, and his opinion is adopted by Courty and other authors. But, as has just been stated, by far the greater number of modern authorities sustain the view that colloid tumors are not of a malignant character.

Dr. Peaslee remarks that "in regard to colloid cancer of the ovary, it should be said that no amount or variety of consistency of colloid contents of an ovarian cyst demonstrates its malignant character, and the expression should be dropped;" and, again, while speaking of alveolar cancer, which is certainly the worst form of colloid cyst, he says, "I do not regard this form as cancer, and have removed two such cysts by ovariotomy, the patients having already lived more than twelve years since the operation." I shall claim finally that in proliferating cystoma, whatever the contents of the cysts may finally become, they have been colloid in the earlier history of the growth. For, whether we accept the theory of Virchow, supported by Foerster, Rindfleisch and Mayweg, that the proliferating cystoma originates from a colloid degeneration of the ovarian stroma itself, or that of later authors, as Klob, Spencer Wells, Wilson Fox, Waldeyer, and others, who claim that the first cysts have an epithelial origin, and are formed by a dilatation of Pflueger's ducts, all agree that the contents of these early cysts are always colloid. I hardly need to add that at a later period of their growth the larger cysts seldom contain colloid in any appreciable quantity. The practical conclusion is, therefore, that other things being equal, colloid tumors of the ovary should always be removed.

But that cancer may co-exist with colloid cysts, and that it may invade any benign ovarian growth as a secondary deposit, is admitted on all sides. And here arises a question of the most vital interest, namely: how to differentiate the malignant from the non-malignant in the diagnosis of these growths, or, what comes nearly but not quite

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to the same thing: how to distinguish tumors that may and should be removed from those that should be let alone. It need not be urged that while it would be improper and disastrous to attempt the removal of a well-marked malignant tumor, it would be a worse blunder to mistake a benign tumor for a carcinoma, and by refusing to operate deprive the patient of a fair chance of life.

The diagnosis of carcinoma of the ovary is sometimes easy; but in many cases it is attended with almost insurmountable difficulties. I have lately met with two cases which, in addition to the usual signs of ovarian tumor, presented a complete picture of the signs of cancer of the ovary, as drawn up by Courty. These are: the period of life at which the disease makes its appearance (usually after 40); rapidity of development and progress (patients often dying within the year); nodular form; small or moderate size; hardness, sensitiveness, and painfulness of the tumor; early alteration of the functions of the body and of the general health; œdema of the feet and legs; ascitic dropsy; sallow or leaden complexion; hectic fever and all the usual signs of cachexia. In another case, where a tumor had made its appearance eight years before, and had been tapped three or four times during the last two years, there was nothing in her symptoms when I saw her—towards the close of her life—to indicate malignant disease, except extreme debility and hectic fever. The autopsy revealed a proliferous ovarian cyst everywhere adherent and filled with colloid and encephaloid material, with malignant disease of the peritoneum and a moderate ascitic accumulation. A fourth case seen two years ago at the Samaritan Hospital, London, under the care of Mr. Thornton, and which had been examined several times by Mr. Spencer Wells, defied any nearer approach to a diagnosis than that there was a tumor—probably of the ovary, accompanied by ascitic dropsy. An exploratory incision revealed a colloid proliferous cystoma of the ovary, with cancerous deposits and curious looking villous outgrowths covering portions of the cyst walls, peritoneum, and other organs. Mr. Thornton removed the tumor, remarking at the close of the operation that the patient would probably linger along for a few weeks and then succumb to the malignant disease of the peritoneum. A fifth case occurring but a few weeks ago in the practice of one of our most eminent gynecologists, and which was examined by a number of medical men in consultation, left us all in doubt as to whether it was a case of fibro-cystic disease of the uterus, or of both uterus and ovaries. The question of malignancy was discussed, and, although

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not fully decided, the general belief seemed to be that it was not malignant. This tumor had been tapped about a year before, and had subsided out of reach after the tapping. An exploratory incision made by the surgeon in charge revealed a lobulated tumor possessing the pearly glistening appearance of an ovarian cystoma. Fluctuation was distinct in the larger cysts, and, although many strong adhesions were within reach, it was hoped that by evacuating the cysts to obtain room, the adhesions might be overcome or the tumor enucleated from its envelope. Neither expedient could be availed of. The tumor involved the uterus and both ovaries, and was adherent to everything. The interior of the opened cyst presented malignant looking papillomatous or dendritic outgrowths, and deeper portions of the mass gave the hard, nodular feel of schirrhus. Nothing could be done except to stitch the open cyst to the edges of the abdominal incision and close up the wound. This patient died of exhaustion, at the end of a week, a fluid secretion from the cyst making its appearance between the sutures after the fourth day.

One more case illustrating still further these difficulties of diagnosis, and a certain contingency that may arise in exploratory incisions, and I have done with this subject. This patient was only twenty-five years old, beautiful in form and feature, with nothing in her general appearance nor in the history of her case as given by herself to suggest a thought of malignant disease. There was a tumor of the abdomen which seemed elastic through its central parts with an obscure sense of fluctuation. It was evidently lobular, and seemed to be ovarian; but there was a hardness of parts of it which raised a suspicion, not so much of cancer as of fibroid growth with cystic degeneration of the more central portions. Her physician, who stands deservedly among the foremost of the profession, had refused at first to attempt anything in the way of surgical interference. But yielding to the urgent solicitations of herself and her friends, and in view of the somewhat rapid increase of size of the tumor, he finally consented, after consultation with his colleagues, to make an exploratory incision, to be followed up by a complete operation, if practicable. As the knife of the operator entered the peritoneum, we were all surprised to see a gush of bloody fluid, followed by a considerable hemorrhage. A soft, medullary growth had been entered, which seemed to spring from the peritoneum and a mass lying below, which was unmistakably cancerous and involved the uterus and ovaries. It was at once apparent that the only way in which the bleeding could

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be stopped was to reach the blood supply of the whole mass; in other words, to overcome the numerous and almost invincible adhesions, get down to the broad ligaments and junction of the body with the neck of the uterus, ligate all these structures furnishing blood supply, and remove the superincumbent mass, including the body of the uterus and the ovaries. This was accomplished with the greatest difficulty; but the shock was too severe for the patient, and she succumbed four hours after the operation. In this case no thought of attempting to remove the growth would have been entertained after discovery of its nature, under the ordinary conditions of exploratory incision. But in the condition encountered the choice lay simply between certain death from hemorrhage and the course which was pursued.

In most instances exploratory incision may be resorted to under antiseptic precautions without serious danger to the patient, and it is often the only method by which the diagnosis of doubtful cases may be cleared up. Aspiration and the microscope may sometimes determine the malignancy of a cystic growth; but they cannot determine its removability. And I think we may lay it down as a rule that doubtful tumors, and sometimes malignant tumors, that admit of ready and complete removal, may always be removed with advantage to the patient. She can have but a limited future if left to herself, while many cases are recorded where the removal of exceedingly doubtful growths has resulted in thorough and complete recovery. The risk, also, that benign growths may in time become malignant, of which the third and fifth cases I have referred to are probably examples, should not be lost sight of. At the same time we may lay it down as a fixed principle that no tumor which does not jeopardize the life of the patient should be disturbed.

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A NEW STYLE OF TRUSS PAD,

PROPOSED FOR THE RETENTION AND RADICAL CURE OF INGUINAL HERNIA.

BY E. B. ROBERTSON, M. D., OF SAN FRANCISCO.

MR. PRESIDENT AND MEMBERS OF THE STATE MEDICAL SOCIETY: I propose to exhibit to you an original invention for the retention and possible cure of inguinal hernia. Perhaps the same principles have been brought to your notice through other methods; but for facility of application, ease of construction, and cheapness, this little contrivance has some claims. This truss pad is so contrived that it can be used on almost any ordinary truss spring, band of elastic webbing, or leather belt. It consists of a hollow leaden pad, egg shaped, or it may be cast in any other shape to suit a given case, with a soft wooden base and flange. The wood is fastened to the lead by a couple of small screws, and serves for attachment to any spring or band. The lead is cast of a size and shape to fit and completely plug up the breach, while the wooden flange rests on the surrounding tissues, and prevents the lead from being driven in to an unendurable degree, by the spring, and assists also in holding the hernia.

The philosophy of the treatment of hernia consists in exciting an adhesive inflammation, without which a radical cure cannot be accomplished. This inflammation is readily created by the egg shaped, leaden plug being forced into and retained in the breach, while it may be watched and regulated as to degree. When the inflammation is thought to be sufficient, this pad may be removed and a soft relief pad applied in its place. The coagulable lymph thrown out around the rupture will become organized and go far towards closing the breach. When the soreness shall have subsided, a smaller leaden pad may be used in the same way, and with the same view.

Practitioners in the interior are often harassed to find a truss with which to even retain a hernia, and they are always the first to be consulted when the accident occurs; but with this method they can construct a truss pad themselves to meet almost any emergency.

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I have occasionally found cases of large scrotal hernia which I was unable to retain by the ordinary truss pad, and that difficulty led me to devise this one. I first made one of wood to meet the difficulty in the case of O. W. Willis, of Calaveras County, who had suffered from a large scrotal hernia for thirty years. In that case I succeeded not only in retaining the hernia, but in radically curing the case in less than one year.

I first contemplated patenting my invention, to prevent charlatans, instrument makers, and dealers in trusses from depriving the profession from using it. My present purpose is to give it to the profession, as a contribution in the interest of humanity.

I believe it is the usual practice among physicians in the city, when consulted in a case of a recent hernia, to advise the patient to go to Mr. Folkers, or some other dealer in or manufacturer of trusses, and have a truss fitted, and wear it. The patient will inquire, "Well, doctor, will that cure me?" The doctor will answer, "No, but it will retain it, and that is all you can expect."

Now, I confidently say to the profession that I have experimented somewhat extensively with my method of treatment, and made it a success. I have become somewhat expert in the application, and having changed my location to San Francisco, I have ample leisure for still further trial; and if any of you should have a case of the kind which you do not care to spend your time upon, I should be pleased if you would send it to me, which would afford me further opportunity to test my method.

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FRACTURE OF TEMPORAL REGION—TREPHINING—RECOVERY.

BY E. B. ROBERTSON, M. D.

Burel Oliver, age 32 years, of good constitution, and of healthy parents, on the morning of the 2d of August, 1879, while traveling with a friend in a buggy with one horse, when descending a hill, which resembled a huge pile of cobble stones, was thrown out and fell between the shafts, behind the horse. It is not positively known whether he was kicked by the horse or struck his head on a stone in the fall. When picked up he was found to have received a large scalp wound, and was entirely unconscious. He was removed to the Spring Valley House, a mile distant from the place where the accident occurred, and his traveling companion came to San Andreas for me, a distance of six miles.

I arrived beside the patient at about eleven o'clock, and found him entirely unconscious, with slow stertorous respiration, and a large scalp wound just over the temporal ridge of the left side. Upon examination, I found the skull extensively fractured just below the temporal ridge, and much depressed.

There was but one man present besides myself and the patient—Mr. Williams, the proprietor of the house. We procured a supply of cold water and some soft rags to use in lieu of sponges, and proceeded to operate as follows:

Incisions were made so as to extend the scalp wound about three inches antero-posteriorly, or from the coronal suture to the parietal boss; then at nearly a right angle toward the posterior root of the zygoma. The soft parts were stripped from the skull as carefully as possible, detaching the temporal fascia and muscle along the temporal ridge; then by reflecting these tissues forward and downward, the fracture was brought into view. It was about two inches from before backwards, and one inch and a half from above downwards, the superior border of which was just below and corresponded to the curve of the temporal ridge.

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Although the skull was extensively shattered, the fragments were so braced against each other that it was impossible to get an elevator beneath either piece, as a commencing point. A disk was cut off the parietal, just above the superior border of the squamous portion of the temporal bone, which disk of course connected with the fracture; then with the elevator the shattered fragments were raised and removed, and the main depressed plate raised and held steadily with the elevator a minute or two, to allow of the expansion of the brain by the influx of blood. Although the disk removed by the trephine, as well as the broken fragments, show on their inner surfaces the grooves for the lodgment of branches of the meningeal artery, the hemorrhage was quite inconsiderable. When the blood ceased oozing the triangular flap before described, with its connecting tissues, were carefully gathered up and laid over the space in the skull, and secured with interrupted quill sutures of silver wire, and covered with lint saturated with cold water.

When pressure was removed from the brain by the operation, the patient became conscious, and remained so ever afterwards; and although he had considerable inflammatory fever, and at times slight delirium, he was easily aroused, when he would answer questions quite intelligently.

Mr. Oliver's relatives, residing near Woodbridge, San Joaquin County, having been notified of the accident by telegraph, arrived that evening, and his mother or one of his brothers remained with him until convalescent. I also remained with him the first two nights.

I deem it unnecessary to describe the progress of this case from day to day; it is sufficient to say that the treatment consisted in the constant application of cold water or ice, antiphlogistic medicines, namely: tartarized antimony, with sulphate of magnesia, at first—due attention to the bowels afterwards—and strictly fluid diet. He was not allowed to chew anything whatever during the first month.

At the end of the fifth week, a skull cap was placed over the head, with a metallic shield fastened in it to protect the weakened portion of the skull; soon after which he rode home in a buggy, a distance of twenty-five miles, more or less.

I received a letter from the father of the patient, dated Woodbridge, January 31st, 1880, in which he said that Burel had left home, and at the time of leaving his head was what they considered well.

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A CASE OF EPITHELIOMA, EXTIRPATION, RECOVERY.

BY DR. ROBERTSON.

Robert Bainbridge, aged 48 years, a native of Scotland, of florid complexion, was admitted to the Calaveras County Hospital, on the 27th day of March, 1879, with a large warty excrescence surrounded by an extensive ulceration, on the right side of the neck, extending from just over the bifurcation of the common carotid artery, upwards and backwards, so as to partially cover the mastoid process of the temporal bone, and the posterior surface of the lower part of the ear, and transversely from the center of the sterno-cleido mastoid muscle, to the ramus of the jaw, and overlying the lower and posterior portion of the parotid gland. I have here the pathological specimen, to be seen by any member who may wish to examine it. You will observe the large excrescence near the center, which the patient informed me commenced about five years before his admission, and the ulceration had commenced about five months prior to my seeing him.

He had also an excrescence of the same character on the right side of the bridge of the nose, much smaller than this, which, however, had not commenced to ulcerate.

He was much harassed with darting, lancinating, and burning pains, of which he complained more at night than during the day.

My diagnosis was that of epithelial cancer, or epithelioma, and I felt certain that extirpation was the only remedy worth trying.

As the weather was very stormy at the time of his admission, it was decided to wait for a more favorable season for the operation, but in the meantime the ulcer was washed daily and dressed with carbolized glycerine, or some of the unguents, without apparent benefit.

On the first day of May, the weather being favorable, with the assistance of Dr. C. W. Shaeneman, of Mokelumne Hill, the mass was removed—the patient being under the influence of chloroform—as follows, viz: An incision was made through the skin and superficial fascia, commencing just above the upper portion of the ulceration, extending downwards, describing a curve, to a point about three

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quarters of an inch below the arterial bifurcation. A second incision, also circular, was made anteriorly and connecting with the first below at an acute angle, and carried over the angle and ramus of the jaw, so at to expose a part of the parotid gland, and continued upwards and backwards through the lower portion of the ear, and connecting with the first incision above at an acute angle. The skin and fascia, thus described, including the ulceration, was then raised and dissected off by means of the scalpel or its handle, finger nails, etc. There was no blood-vessel opened that required ligation; the external jugular vein was divided and compressed; the posterior auricular and other small arterial branches were cut, but compression for a few minutes was quite sufficient to control the hemorrhage.

After oozing of blood had ceased, the edges of the wound were brought as near into coaptation as possible by means of interrupted silver sutures, supported by pieces of gum catheter for quills. The wound was filled with lint saturated with carbolized oil, consisting of one part of the acid to twenty of linseed oil, and the whole covered with the same material. The dressing was left undisturbed until the fourth day, and upon examination it was found to be adherent, when it was left until the fifth day, then removed, and the wound washed and dressed with a weaker oil. On the seventh day carbolized glycerine was used in the proportion of one of the acid to sixty of the glycerine, and the sutures were removed, as they were serving no useful purpose. On the sixteenth day, granulations being abundant, the wound was dressed with basilicon ointment, which was continued until the cure was complete.

During the whole course of the treatment of this case, there was but little inflammatory fever, and in fact nothing unfavorable occurred of sufficient importace to require mention here.

On the last day of May the excrescence on the nose was removed by two semilunar incisions, thereby removing an elipsis with the tumor. Union took place by first intention, and caused little or no inconveniece.

The patient was discharged on the ninth day of June, apparently well, but if my diagnosis was correct the disease will most likely recur, possibly in some other part of the body.

I regard this case as malignant, and the sore as a local manifestation of the constitutional taint. In any event the operation was justifiable, because it had the effect of putting off the evil day perhaps for some years.

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CALCAREOUS DEGENERATION OF THE STRUCTURES OF THE APEX OF THE HEART,

With Some Observations on the Etiology and Pathology of Calcareous Infiltrations.

BY DR. M. C. O'TOOLE.

The specimen which I have the privilege of presenting consists of the heart of a man aged 37 years, the apex of which to the distance of about one and a half inches from the point underwent a pathological change by which the muscular walls, endocardium, pericardium, and columnæ carnæ assumed the consistence and appearance of bone. It is to be regretted that so little is known of the clinical history of this case. The man died in the San Francisco city receiving hospital in 1879, two days after being admitted for treatment for the effects of an overdose of aconite taken by mistake. The possibility of the drug acting as a joint factor in the pathological formation will be considered later on.

Doctor Stivers, one of the City Physicians who made the autopsy twelve and a half hours after death, reports: "Heart much enlarged; extensive aneurismal dilatation of the ascending and transverse portions of the arch of the aorta; tumor not ruptured, the vessel being filled with a fibrinous mass, through which the blood current had formed a passage. The orifice of each coronary artery was partly occluded, valves normal; no abnormal infiltration existed in the heart except at the apex; rigor mortis absent." In the affected parts of the left ventricle there could not be found a trace of the normal structure, all being transformed into a bone-like mass. The walls of the right ventricle were less affected than those of the left. In the former could be observed islands of osteoid deposit between which were the changing structures in various degrees of consistence. The intertrabecular spaces of the apex were not occupied by concretions, the parts retaining their normal unevenness of surface. The columnæ carnæ were not all affected to the same extent, some appearing like spiculæ of bone, others containing an osseous thread in the

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center of the column—the surface retaining some resemblance to the normal structure.

Microscopical inspection showed the abnormal material to be destitute of the essential elements of true osseous tissue, viz: bone corpuscles or canaliculi sections made after softening in acidulated glycerine could not be stained with carmine, but were colored blue with hæmatoxylon. Absence of the characteristic stellate tufts of crystals showed that we were not dealing with a deposit of the urates of lime or soda. Treatment with muriatic acid proved the pathological deposit to consist almost exclusively of phosphate of lime.*

It is important to consider what were the abnormal conditions by which salts of lime were deposited as an interstitial infiltrate in the heart's apex.

There exists a well recognized law regarding pathological infiltrations that, given a certain dyscrasia, it may generally be known which organ will be first to suffer from the peccant material. Superfluous fat affects by preference the liver and areolar connective tissue. Amyloid degeneration is found most frequently in the kidneys, spleen, and liver. Salts of lime, when liberated from the bones by caries or carcinomata, will produce calcification by metastasis, and the lime will select the pyramids of the kidneys and the lungs as its resting place. Post mortem examination in our case revealed no indications of supersaturation of the blood with salts of lime. We are therefore compelled to look elsewhere and to other causes for an explanation for the abnormal formation.

Salts of lime in the blood owe their solution in part to the albuminous ingredients. Carbonic acid is, however, to be regarded as the most important solvent, there being always a sufficiency of this acid in the blood to dissolve more than the normal quantity of lime. The volatile fatty acids and lactic acid also act as solvents.

The precipitation of lime from the blood, whether into the basis substance, in the formation of normal bone, or in pathological formations, will invariably conform to the general law of infiltrations, in that the deposit will first appear in those regions where the nutritive fluid is obstructed, or where it circulates with difficulty. "Small arteries, transition and capillary vessels are the first points of attack of all infiltrations."†

NOTE.—When *carbonate* of lime is treated with muriatic acid the process is marked by formation of numerous vesicles of carbonic acid. These are not seen during the solution of lime phosphate.

†Rindfleisch, Pathological Histology, p. 53—1873.

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This tendency of lime to leave the blood in presence of protracted obstruction to the circulation, is the direct cause of several morbid conditions. Long continued catarrhs of the respiratory mucus membrane, by retarding the blood supply of the cartilages of the larynx and trachea, will produce calcification of those structures.

Chronic suppuration of the vertebræ will from a like cause bring on calcification of the intervertebral discs. The deposit of lime so frequently met with on the valves of the heart and on the inner coat of the vessels, in connection with the atheromatous condition may be mentioned as an additional illustration of this law of infiltrations.

Until quite recently the atheromatous process was believed to consist of an exudation of coagalable fibrin. Rokitansky held this view. It is now known that the atheromatous process is not an exudation, the so called atheromatous pulp, absess, etc., being in reality the result of endoarteritis—change in the parenchyma of the intima, or inner coat of the vessels. The intima being a non-vascular structure, derives its nutrition from the blood which flows over it. Friction by any irregularity in the blood currents, the existence in the blood of gouty or syphilitic impurities, establishes first an irritation on the surface of the intima. Irritation is succeeded by proliferation of cell and connective tissue elements. These obstruct the blood supply, and as a result the salts of lime are deposited on the surface of the vessel.

In the case under review the aneurism involved the sinuses of Valsalva, together with that portion of the arch from which the coronary arteries are given off.

As the blood passed from the left heart directly into the fibrinous mass, both conditions essential to the precipitation of salts of lime were established, viz: retarded circulation and escape of the diffusible carbonic and fatty acids between the layers and interstices of the coagulum.

As the aorta distended, the orifices of the coronary arteries were moved from their normal position in relation to the blood current; that is, they were forced from the center and received their blood supply from an obstructed circulation, which had lost its chemical solvents for salts of lime. It is worthy of observation that in this portion of the aorta the coats of the vessels are destitute of muscle-fibers. (Stricker's Manuel of Histology, p. 196.)

The superficial portion of the large trunks of the coronary arteries facilitated the flow of the blood through those parts of the vessels at

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the apex; where the smaller branches turn inward through the "whorl," circulation ceased, and the precipitation of the salts of lime produced calcarious degeneration of the structures of the apex.

Microscopic specimens prepared from different parts of the structure would indicate that the process of infiltration had existed for a considerable time before death. At the point of the left ventricle, immediately under the pericardium, the deposit consists of a spongy formation, resembling rachitic cartilage. (Specimen No. 1.) The spaces are apparently the result of resorption of the lighter and more soluble constituents of the infiltrate. Preparations from other parts show a solid homogeneous material.

The quantity of aconite taken, as near as can be ascertained, was about one drachm of the tincture of the root. Death took place forty-four hours after swallowing the drug. All the symptoms and conditions pointed to narcotic poisoning.

Did calcification exist before the drug was taken? The solid formation of some portions of the structures, together with the indications of resorption having taken place at the point of the apex, would suggest an affirmative answer. It must also be remembered that in none of the numerous autopsies which have been made and recorded, where death was caused by poisoning with aconite, do we find mention of calcification of the heart's apex.

The writer would venture the opinion that to produce the pathological condition under review, both the aneurism and the depressing influence of acro-narcotic poisoning were required.

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CASE (PRESENTED AT MEETING OF STATE MEDICAL SOCIETY) OF DOUBLE CONGENITAL CAPSULO-LENTICULAR CATARACT, WITH COMPLICATIONS IN RIGHT EYE, REQUIRING ORIGINAL OPERATIVE PROCEDURES

Both eyes presenting the appearance usual in such cases, needle operation was decided on.

On passing through anterior whitish layer of cortical substance, point of needle impinged against what proved to be a firm chalky concretion, the result of secondary metamorphosis. Having on more than one occasion witnessed the difficulties attending the removal of particles of such material from the eye, after operation, it was decided if possible in this instance to remove the cataract en masse.

A Bowman's needle being passed into the center of the structure, partial rotation of the handle succeeded in detaching the lens from the zonula and from the hyaloid membrane, while at the same time, and without removing the needle from the eye, a full sized upper flap section in the cornea, permitted *the entire* cataractous stricture to escape with the outflowing aqueous.

There was no loss of vitreous. The eye made a rapid recovery, with good sight.

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TREATMENT OF SOME FORMS OF CONTINUED FEVERS,

WITH SALYCILIC ACID AND ITS DERIVATIVES.

BY D. K. FARLEY, M. D.

It is not my purpose to take up the subject of continued fevers to give an extended description of them, but simply to give some practical experience with regard to salycilic acid and its derivative salycilate soda in the treatment of them.

The foundation for treatment of disease is a knowledge of its pathology and histology. Not what it may be called, for the nomenclature of disease is changing almost daily. It may be called by one name to-day, another to-morrow. This country or that, or each and every writer, may give the same disease a different name and produce "confusion worse confounded." Therefore, judging from the symptoms, what may be the pathological condition, and from microscopical examination, (when they can be made,) what the histological changes are the physician can proceed to treat his case with a precision that is scientific—any other course will be guess work—and before he is aware of it he has fallen into the routine track, and treats his case by name only; and "because" such and such an authority says that or this is the course to pursue, losing his own individuality, blundering along in blind stupidity; sometimes successful, but oftener not.

Recognized as zymotic diseases, dependent upon a peculiar "contagium vivum," may be contracted either from atmospheric causes or by ingesta taken, producing enteric lesion as the principal pathological factor, with an ænemic condition of the blood, large increase of the white corpuscles above the normal quantity impoverished condition of the red, we have, as I conceive, the bodily condition in cases of continued fevers, such as typhoid and typho-malarial fever. Viewing this contagium vivum as a germ which by fermentation multiplies and increases until the system is thoroughly poisoned thereby, that when the disease is fully developed then follow the train of enteric symptoms consequent upon inflammation of the mesenteric, peyers, and bruners glands, with diarrhœa, ulceration, and hemorrhage as

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the sequence, microscopic examination of the defection gives a plentiful supply of bacteria. Now I reason that an early antiseptic treatment becomes antidotal and resolvent, whereby a quicker subsidence of the disease ensues.

The family of Judge C——, of Sacramento City, spent the Summer of 1875 in the Town of Gilroy. In the latter part of the season, before frost, they made a visit to Sacramento and Folsom. After their return they were all, one after the other, taken with (a then to me) peculiar type of fever. Since that time I have become convinced that it was the so called typho-malarial fever, so well described by Dr. Hoff in the January number (1880) of the *American Journal of the Medical Sciences*, approved as such by Dr. Woodward. The fever was ushered in by a distinct chill, and assumed the form of bilious remitting fever, was treated as such; but not being arrested, and assuming a continued form, tenderness of the bowels, particularly of the right iliac region, ensued, followed in a few days by diarrhœa, showed most clearly the character of the fever. I then placed the patient upon the use of sulphurous acid and aconite, with animal broths, mucilaginous drinks, etc., and in this way my patient worried through a six weeks' fever to convalescence. When the second child was taken sick I placed it immediately upon the use of the salycilate of soda. Having used it in several cases of rhumatic fever, and seeing how promptly the pulse and temperature of the body was reduced, also how quickly the pain was relieved, and how readily the fever subsided, decided me in its use. Knowing that when the bowel complication took place, in the first case, diarrhœa came on, and suspecting there might be bacteria in the discharges, and that an antiseptic would be the remedy indicated, I reasoned that salycilate of soda would answer the indication and prove successful, should my theory prove correct, viz: that if bacteria should be in the defections they surely were the primary disturbing cause. (I have since become aware, by microscopical examination, that they are found in the defections.) I therefore concluded to put my patient upon the salycilate, prepared according to the following formula: ℞. salycilic acid ʒiii, soda bicarb, ʒii, agua font. glycerine aa q. s. ft. ʒiv. In partis Num xii Div. Sig. One part every six hours; as fever subsided, lengthening the period to eight hours. No enteric symptoms ensued in this case, and at the end of two weeks the little fellow was convalescent. When the third child was attacked it was placed upon the same treatment. The madam having had so severe a siege

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became anxious, and telegraphed her husband to send their family physician (Dr. Hatch) down. After he had seen the case and consultation was held, the doctor advised the use of quinine in the treatment, (a treatment I had abandoned after its use in the first case); said that he had no experience with salycilic acid or its derivative. In two or three days after the change of treatment was made enteric symptoms came on, diarrhœa followed, and the fever became more severe. After trying the quinine for four days, I fell back upon the salycilate, with the happy result in two or three days of seeing the fever abate, diarrhœa stop, and all unpleasant symptoms disappear, followed by speedy convalescence.

In the month of January, 1878, was called to see J. L——; found that he had been complaining about a week; had been moping about the house, feeling, as he expressed it, "so tired all the time." Had taken his bed that morning. His pulse 120; the temperature 103; skin dry and harsh; some headache. His tongue was covered in the center with a white fur, edges and tip red, tremulous when protruded. Abdomen hard, sunken, concave from above downward; pain upon pressure in the right iliac region; bowels constipated, urine scanty and high colored; specific gravity 1,018, slightly albuminous, with renal epethelion and granular cast. A saline laxative was given, from which the bowels moved freely four or five times. I placed him upon the salycilate of soda, 20 grs. to the dose every four hours, with essence of beef as nourishment. For three days there was no abatement of symptoms, with the exception that the urine became more abundant and lost the albuminious character, the s. g. arising 1,022. At the end of the third day fever began to abate, and on the fourth morning (the 11th of his sickness) pulse 100, temp. 99; evening—pulse 105, temp. 100; 5th morning—p. 90, temp. 99; evening—p. 100, temp. 100; 6th morning—p. 90, temp. 98.5; evening—p. 90, temp. 98.5; 7th—pulse and temperature normal, skin acting freely; all tenderness of bowels relieved; rather constipated; had to give a saline laxative to move them. Discontinued the medicine because he complained of ringing in the ears and a very disagreeable sensation of the head. Push the essence of beef with teaspoonful of brandy every two hours. In the evening, at five o'clock, was called in a hurry to see him; had had a hard shaking ague, but had passed off by the time I got to him. The subsequent febrile reaction was great during its excess, the pulse rose to 130, and temp. to 104; subsided at four o'clock A. M. 8th day, with most profuse perspiration, at the

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same time the most extensive sudamina appeared upon the abdomen that I ever saw. Rubbing the hand over them felt like rubbing it over a rough board. Quinine and brandy prevented another paroxysm. From this date convalescence steadily progressed until health was restored. On the third day all pain in the bowels was relieved; there was no diarrhœa; in fact the bowels rather constipated, and laxative enemata used to move them. With the subsidence of the disease a peculiar mental derangement, with deafness, ensued, which lasted for a week after he was up and around. I attributed it to the toxic effect of salycilic acid. This patient was confined to the bed only ten days.

Again, November 23d, 1878, saw a little girl eight years old, the daughter of Mr. G——; had returned that day from a visit to her sister, who lived at Tres Pinos, in San Benito County; been ailing about a week, moping about the house. Found her with a pulse of 130; temp. 104; tongue furred, white down the center, with edges and tip red; skin hot and dry; tenderness over the entire abdomen, more marked in the right iliac region; bowels moved regularly, dejections of a semi-solid consistency; urine scanty and high colored, (did not examine chemically). Salycilic acid was given, 15 grs. in a wafer, at 6 P. M., 12 M. and 6 A. M., with drop doses of tr. aconite (Flemings) every 3 hours during the day. Would not or could not take beef essence nor milk, but had a peculiar longing for beer, which was given, about a pint and a half during the day, and constituted her main sustenance during the period of her illness. Under the continued use of the salycilic acid all soreness and tenderness of the bowels disappeared on the third day of my attention—about the tenth since her sickness—they became constipated, and had to be moved with laxative enemata. Fever had entirely disappeared upon the sixth day of attendance—the thirteenth of commencement of attack; discontinued the medicine. No delirium, no ringing in the ears, no deafness remained from the use of the acid.

Again, on the 14th day of October, 1879, was called to see Miss D——, sixteen years old. She had been complaining about a week; took the bed this (the seventh) day. Found the same chain of symptoms as in the before described cases. During the first week of attendance, being the second of illness, I pursued an expectant course, giving a little tr. aconite every three or four hours; a sponge bath two or three times a day; warm pedeluvium at night, waiting and watching. At the end of the second week diarrhœa came on,

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with an increase of the fever, accompanied with some incoherency. Examined the urine and found it albuminous. Fœcal discharges, under microscopic examination, were found filled with bacterium terms. Fourteenth day—commenced the use of salycilate of soda, 20 grs. doses every 4 hours. The third day thereafter bacteria had disappeared from the discharges, urine became more abundant and less highly colored, and albumen disappeared therefrom; tenderness of the bowels considerably relieved. The seventh day from the commencement of the use of the medicine, being the twenty-first of illness, all tenderness of the bowels had disappeared, diarrhœa had ceased, and the bowels had to be moved with an enema. Continued the medicine for two or three days longer, more as a precautionary than a remedial agent. Considered patient convalescent, and would have discontinued my visits on this, the fourteenth day of attendance (twenty-first of illness), but, owing to the anxiety of the parents, continued visiting until the 2d day of November, the twenty-eighth day of sickness, when I dismissed the case thoroughly convalescent. There was no opiate used in these cases, except one five-grain dose of Dover's powder to this patient, which, not having the desired effect to quiet and produce sleep, was not repeated.

I am well aware of the fact that it requires a more extended experience and a larger statistical report than this to fully establish the efficacy of any medicine in a class of diseases of so serious a nature as continued and enteric fevers, but when we take into consideration the effect of this medicine to lessen the pulse, lower temperature, relieve pain, check diarrhœa—in fact, relieve all the grave symptoms attending these fevers—it recommends itself as a valuable adjunct in their treatment.

One fact in the above cases, worthy of note, is the early appearance of albumen in the urine.

Dr. Greenhow, F. R. S., and the President of the Clinical Society of London, says: "Albuminuria, when it occurs, is usually a late event in typhoid fever." Leibermeister: "Not until the fever has reached its hight." In each of the cases examined albumen was detected in the second week of the fever.

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LOCALIZATION OF DISEASE UPON THE CEREBRAL SURFACE WITH EXPERIMENTS.

BY J. O. HIRSCHFELDER, M. D., PROF. MAT. MED., MEDICAL COLLEGE OF PACIFIC.

MR. PRESIDENT, LADIES AND GENTLEMEN: Within the last few years the attention of the medical world has been very forcibly attracted to the hemispheres of the cerebrum by the physiological investigations of Hitzig, Ferrier, and other experimenters, as well as by the clinical results obtained by the light thrown by these researches.

Until Hitzig in 1870 first demonstrated that irritation of the gray matter of the cerebral surface produces a motion in certain muscles of the opposite side of the body, it was supposed that there was no such thing as localization upon the surface of the hemispheres, and indeed the experiments of Flourens and his school seemed to prove this, for part after part of cerebrum was removed by him without any great change being evident in the conduct of the animal as long as the quantity removed was small. As soon as a larger quantity of cerebral matter was ablated the motor and sensory functions diminished uniformly. The effect was the same, according to Flourens, in whatever part of the cerebrum the ablation was performed. If the ablation was carried still further, at a certain point the whole of these functions disappeared, to return again in a few days if a portion of the hemispheres still remained behind. These investigations seemed to prevent any thought of a localization upon the surface of the cerebrum arising, but a more careful and better localized investigation of the cerebral surfaces has proven the fallacy of the experiments of Flourens. Fritsch and Hitzig found that if certain spots upon the brain around the sulcus cruciatus of the dog be irritated with the galvanic current, movements occur in the muscles of the opposite side, and centers, as they were called were determined for the muscles of the trunk, those of the anterior extremity the posterior extremity

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and the facial nerve, as is shown in Figure 1. We see the sulcus cruciatus separating the frontal from the parietal portion of the brain, and corresponding to the sulcus rolandi of the human brain. In front of it is situated the center for the muscles of the trunk. Below this center that for the anterior extremity is situated. Behind the sulcus cruciatus is the center for the posterior extremity, and above the fossa Sylvii we have the center for the facial nerve.

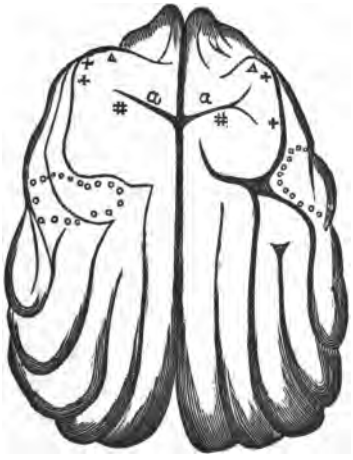

FIG. 1—The right side represents the brain of one dog, and the left that of another.

a.—*sulcus cruciatus, (corresponding to sulcus Rolandi in the human brain);* ∆.—*Center for the muscles of the trunk;* ‡.—*Center for the ant. extremity;* *.—*Center of the post. extremity;* o.—*Center for the facial nerve.*

These experiments have been repeated by a large number of investigators with success, and at the close of this lecture I shall endeavor to demonstrate them to you.

Ferrier repeated these experiments, but modified them by using the faradic instead of the galvanic current. He localized a large number of points upon the surface coinciding in general with those found by Hitzig. Besides these he described points further back, from which movements could be produced which Ferrier looks upon as not being motor centers, like those further towards the front, but that the movements so produced are of the character of associated motions or reflex indications of sensation—that irritation of the points in question produced sensations, and that the movements fol-

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lowing were the reflex results of those sensations. The experiments of Ferrier have not been sufficiently confirmed by other investigators to insure their acceptance by science, and indeed there is a strong objection to them, namely: that even the feeblest faradic currents are so powerfully irritant in their action upon the brain that no reliance can be placed in the results obtained—that not unfrequently epileptic fits follow the use of even very feeble currents—a fact to which I can bear witness from personal observation. But even after strong galvanic irritation movements are observed, sometimes a long period after irritation has ceased, and these movements assume at times the character of well develped epileptic attacks. We have analoga of these forms of cortical epilepsy in the cases of that disease occurring with human beings in consequence of circumscribed irritation of the cerebral vortex through tumors, localized inflammations, etc.

A very interesting series of investigations have been made by Dr. Soltmann upon newly born animals, which prove that these centers are not developed until the sixteenth day after birth. This coincides perfectly with the fact that the movements of infants are not true voluntary movements, but fall under the head of the reflex.

If in an animal we lay bare the brain and irritate a part found to be a motor center, we see contraction upon the opposite side occurring; and if we then destroy or oblate the center so found, the part supplied by it shows disturbances of motility. Some of these disturbances are transient and some are permanent. In the beginning, after extensive destruction, we have a paralysis of the part which is more or less complete. After a certain period the paralysis begins to disappear, and instead we have a paretic enfeebled condition, together with ataxia of the part. The affected leg, for example, can be placed passively in the most abnormal positions, and in walking the animal frequently steps upon the dorsum instead of the sole of the foot. If the animal be elevated by the skin of the back and the feet be allowed gradually to touch the table, the affected part will be applied by the points of the toes, whereas the healthy part by the soles. In spontaneous walking we likewise observe abnormal movements of the joints. At the same time all actions that we look upon as acts of intellect are absent. Thus the dog will no longer give the paw on the affected side, but will still present the healthy one.

I have here before you a number of dogs operated upon in the manner described, in which these symptoms are clearly defined.

Irritation of the posterior regions of the brain produce no move-

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ments, according to Hitzig, which fact is confirmed by the dictum of anatomy that centripetal or sensory fibers pass from the tegmentum to the posterior part of the cerebral surface, whereas the centrifugal or motor fibers pass from the pedunculi to the anterior portion of the cerebral surface.

If we would arrive at a philosophy of the cerebral cortex we are compelled to accept the deductions of Kussmaul, according to whom the following is the case. Sensory impressions are conducted to the posterior cerebral cortex, where they probably pass through various stations, some of which probably lie in the anterior part of the cortex. The will which has been called into play by the irritation of the sensory cells in the posterior portion of the cortex sends its influence to the anterior region, from whence the irritation passes to the centrifugal fibers and through them to the part to be acted upon. In other words, these centers when irritated through sensor influences (in a manner similar to the reflex action in the cord) possess the power of setting in action the machinery of the corpora striata, the medulla oblongata and the cord. At the same time they can influence the manner of operation of these lower centers, and in consequence are co-ordinatory centers. Have these centers, however, the power to produce energy, irrespective of sensor impressions? Are they more than simple regulators of motion, induced in lower centers? The experiments before explained answer in the affirmative, and the anatomical investigations of Betz confirm them. According to this microscopist the entire cerebral surface can be divided into two portions, separated by a line drawn through the fossa Sylvii, the region behind sulcus centralis rolandi and the anterior margin of the præcuneus. In the anterior region—the motor—the pyramidal cells predominate; in the posterior the granular layers. Besides these he found at the point determined by Hitzig to be motor centers large pyramidal cells differing from all others and called by him giant pyramidal cells. These are not present in the newly born but develop some time after birth.

A number of clinical cases demonstrating the applicability of these results obtained in animals to man have been observed and placed on record.

The case is reported of a woman who, after having suffered for a long time with headache, suddenly lost her speech after a fright. At the same time cramps in the right facial nerve set in, together with a feeling of numbness in the right arm and leg. Headache and vomit-

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ing followed. After a quarter of an hour the speech returned but remained slightly disturbed. Later a number of similar attacks of cramp reoccurred. At the time the patient entered into the hospital, 22 days after the first attack, she complained of severe but badly localized headache, not increased by striking the head. The right angle of the mouth is lower than the left, the right naso labial fissure is absent. On the other hand, the right eye can be properly closed and the forehead well furrowed. The tongue is turned to the right when protruded. The pronunciation of certain letters, for example, is difficult, but no aphesia is present. Ten days later the patient died, and the post mortem examination revealed a cancerous nodule about the size of a cherry in the lower portion of the left gyrus precentralis, as is shown in figure 2, the dotted lines indicating the extent of the tumor, and the darkened part being where the tumor had broken through the gray matter. The new formation extended about one half inch in depth.

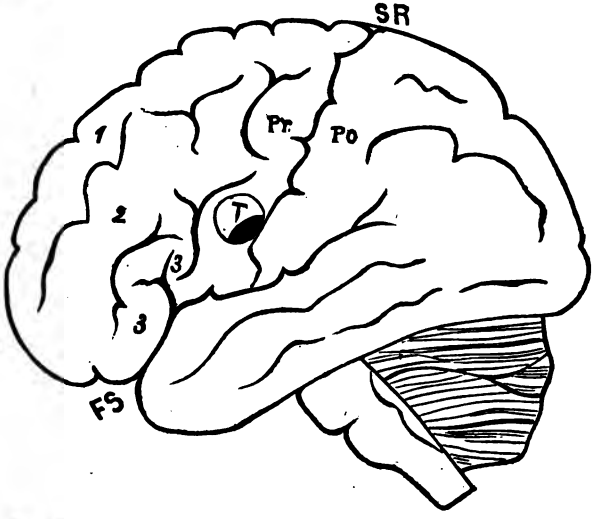

FIG. 2. F. S.—*Fossa Sylvii;* S. R.—*Sulcus Rolandi;* 1, 2, 3.—*Frontal gyri;* Pr.—*Gyrus precentralis;* Po.—*Gyrus postcentralis;* T.—*Tumor.*

Another case is related of a woman 36 years old, afflicted with mitral insufficiency, who was suddenly attacked with headache and vertigo. Shortly after this attack she observed that it was impossible for her to move her right arm and leg. At the same time a paralysis of the right facial nerve developed. Upon post mortem

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examination a red softening of the gyri precentralis and postcentralis as shown in figure 3 was observed, which did not extend deeper than the gray matter, the white substance underneath being perfectly intact. The red softening had been produced by embolism, that is by the passage of clots from the diseased mitral valve which lodged in the arteries supplying the cortical substance affected, as was shown by the fact that a number of vessels of the pia mater in the region of the fossa Sylvii were likewise in a state of embolism. No other part of the brain was affected, and so we have a perfect right to ascribe the complete paralysis present to the destruction of the gray matter in the motor gyri.

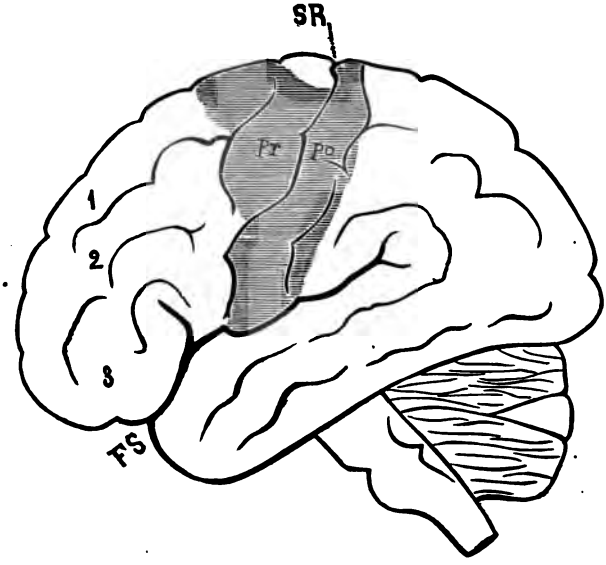

FIG. 3. F. S.—*Fossa Sylvii;* S. R.—*Sulcus Rolandi;* 1, 2, 3.—*Frontal gyri;* Pr.—*Gyrus precentralis;* Po.—*Gyrus postcentralis. Shaded part is the region of the red softening.*

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THE OBSTETRICAL POCKET FORCEPS.

BY JAMES F. SULLIVAN, M. D., SAN FRANCISCO.

Every obstetrician has often felt the need of some simple and convenient extracting force which could be readily applied, in cases requiring some instrumental aid, without adjusting the woman or arousing her apprehensions.

The use of the ordinary forceps, as they are generally employed, is an operation requiring some preparation, including a change in the position of the patient and bringing her to the edge of the bed, all of which tends to excite her fears and to induce a certain amount of *nervous shock.*

In cases where the long or short forceps are obviously needed, all these considerations have to give way to the necessity of the occasion; but there are many cases requiring instrumental assistance, particularly where the head is low in the pelvis, that delivery can be easily accomplished by the means I am about to describe, while the woman remains in the ordinary position of labor, without causing her either nervous shock or mental anxiety, and, if necessary, without her knowledge.

In labors which have progressed favorably up to a certain stage—where the head is in the pelvis and the vertex presenting at the vulva with every pain—an unlooked-for delay frequently occurs, which may be prolonged for hours. It has happened to every accoucheur that he has prophesied a speedy termination of a labor, expecting every pain to expel the head, and has found, to his chagrin, that two or three hours may elapse without any apparent progress.

We will not take time to consider all the causes of delay at this stage of labor, such as large size of the head, shortness of the cord, too strong ossification of the head, inefficient uterine action, etc. But there is one cause which I believe has been greatly overlooked, and that is, *that the expulsive efforts of the uterus are in the direction of the superior strait of the pelvis, and are consequently at a right angle with the inferior strait or outlet,* so that when the body of the child is

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in the uterus and the head in the pelvis, *a considerable amount of force is lost at the neck of the child.*

From whatever cause the delay may arise, it is convenient to have a safe and efficient means at hand of terminating the labor at will; and for that purpose I have used, for the past nine or ten years, a simple contrivance, which consists of the blades and lock, *without the handles*, of the ordinary short forceps. Each blade terminates with a strong ring, set close to the lock, which takes the place of the handle.

The wood cut is one third the size of the instrument, which measures eight and three fourths inches in length.

The absence of the handles is a great practical advantage, by facilitating the introduction of the blades without changing the position of the woman, and also by preventing that *compression* of the head caused by pressure upon the handles, which endangers the life of the child. At the same time it gives us a sufficient extracting force, which can be increased to any extent by inserting a strong cord or strip of cloth through the rings.

The ordinary forceps is a terrible instrument in unskillful or inexperienced hands, while this simple tractor is comparatively harmless, and the ease with which it can be made to embrace the head while the woman lies either on her side or back, in the usual positions of labor, is remarkable.

I have been accustomed to carry one blade in each breast pocket, and, if their use was required, they could be warmed and oiled in an adjoining room, rolled in a napkin, and placed in the bed ready for use. The convenience of carrying them in the pocket avoids the necessity of the physician appearing with a mysterious and ominous looking package under his arm; and, in cases requiring compression of the head or the rectifying a malposition at the brim, the ordinary forceps can be procured.

On several occasions, when a woman had been attacked with puerperal convulsions, I have been able to effect delivery in a fraction of

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the time it would take a messenger to fetch my case of forceps from home.

They are especially useful in breech and footling cases, where the head is delayed after the expulsion of the body, and where every moment increases the danger to the life of the child. From the fact that they have no handles, they can be made to grasp the head in those cases while it is yet at the brim, the body of the child being held well over the abdomen of the mother by an assistant, and the blades introduced by inserting the hand into the vagina.

Being a firm believer in the old maxim that "Meddlesome midwifery is bad," I deprecate the use of all interference in labor, especially in primiparous cases, unless it be absolutely required; and the only objection I can find against this little instrument is the temptation which some may feel of hastening a delivery when nature is doing her work faithfully and is fully equal to her task.

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LACERATION OF THE CERVIX UTERI.

By CLINTON CUSHING, M. D., San Francisco.

I desire to call the attention of the Society to an affection that is quite common, but is as yet seldom recognized by the general practitioner.

I refer to the lesion known as laceration of the cervix uteri. In venturing the remark that this disease is not usually recognized by the general practitioner, I speak advisedly; for, however simple the diagnosis may seem to those who have had special training and opportunity for observation, it is not easy, by any amount of reading or description, to convey a correct impression of the facts in such a manner as to make it clearly understood when seen by those who have not had an ocular demonstration of a case.

Although it is a proposition that is not easy to prove, it is highly probable that in many labors, and especially in first labors, there is more or less laceration of the thin edge of the dilated cervix, when the head and shoulders of the child are passing through it.

These lesions, as is the case with similar lacerations of the perinæum, heal in the larger number of cases within the first ten days after delivery, if cleanliness, rest, and the observance of the recumbent posture is maintained.

But if the woman get upon her feet too soon, while the uterus is still large and heavy, and the tissues are relaxed and weak as an effect of the confinement, and union is delayed or prevented, we then have to deal with a condition requiring surgical interference for its successful management.

To Dr. Emmet, of New York, is due the credit of discovering and calling the attention of the profession to the nature and frequency of the lesion, as well as to devising and putting into practical operation a successful method of cure.

Among the most frequent causes of the accident are: the birth of an unusually large child; a rapid or a tedious labor, requiring the use of forceps; version, or craniotomy.

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It is also a common result of criminal abortion, and may occur at the time of removing fibroid tumors of the uterus.

The laceration may be double or bi-lateral, extending laterally both ways from the os, and may involve the whole thickness of the cervix to the vaginal junction, or it may occur upon one side only, or it may be stellate, several fissures radiating from the os; and, lastly, we may have a laceration of the neck, leaving a trumpet-shaped cervical canal, where the canal seems to be more involved in the injury than the vaginal portion of the cervix.

Before entering upon the diagnosis of these cases, their understanding will be much facilitated by a description of the changes which take place after the receipt of the injury.

When the laceration extends laterally, and does not heal before the woman gets upon her feet, the uterus, still enlarged and heavy, settles down so that the cervix rests upon the floor of the pelvis, and the posterior lip impinges upon the posterior vaginal wall. Now the traction made upon the anterior and posterior lips of the cervix by that portion of the vaginal wall that is adherent to the neck of the uterus, and the impinging of the posterior lip upon the posterior vaginal wall, causes a gaping of the torn surfaces as the uterus settles down into the pelvis, and follows the direction of the least resistance.

That portion of the cervical mucous membrane that thus becomes everted is chafed against the vagina, the mucous follicles become enlarged and secrete a large amount of mucus, which passes away as a leucorrhœal discharge, often becoming acrid and producing an erosion of the vaginal surface of the cervix.

The mucous follicles ultimately become enlarged to such an extent that the diseased tissue is often a mass of cysts, requiring special treatment; or, if left alone, they atrophy and become obliterated.

When the laceration extends forwards into the anterior lip or backwards, quite a different state results; the gaping does not occur to the same degree, for the lateral pressure of the vaginal walls tend to keep the parts approximated; but if union does not take place, the continual irritation of the fissure causes congestion, enlargement, and cystic disease.

The most frequent seat of laceration, as shown by Dr. Emmet's statistics, is upon the left side, and this is explained by the fact that in the large majority of cases the occiput of the child's head, which is the most projecting part, presents upon the left side in its passage through the dilated os.

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It is quite probable that a woman who is suffering from the disease in question, attended with profuse secretion, is not very liable to become pregnant, but that pregnancy does occur in some cases is well known.

I am satisfied that the existence of this affection is much more frequent than the profession are aware of among women who have borne children.

Out of five hundred fruitful women who applied to Dr. Emmet for relief of some variety of uterine disease, thirty-three per cent were found to have laceration of the cervix.

The symptoms of the affection are those with which nearly every professional man in general practice is familiar—pain in the back, leucorrhœal discharge, irritable bladder, pain in the region of the ovaries, inability to remain long in the standing position, pseudocyesis or false pregnancy, intractable headaches, derangement of the stomach and liver. And, in addition, I have repeatedly noticed a symptom that is so constant an accompaniment that, although I do not remember of seeing any notice of it by any writers on the subject, it seems to me to be pathognomonic, and that is, a pain under the left breast. The pain is probably a reflex neuralgia, and why it should be universal I am at a loss to determine; but that it exists in a very large proportion of cases, where there is any continued uterine or ovarian irritation, is quite certain.

The patient may suffer from some one or several of these symptoms, and, in addition, may have an amount of nervous irritation and mental suffering that is at times almost unendurable, and is much worse than real pain.

When the laceration has been a severe one, a common accompaniment is a certain amount of prolapse, and this is often attended with retroversion, the displacement being caused by the increased size and weight of the uterus, which is produced by the continued irritation at the seat of injury.

Although in a small proportion of cases the menstruation remains normal, in the larger number it is too profuse and too frequent—in some instances amounting to a serious and almost a continuous hemorrhage.

One of the most serious as well as the most common complications of this disease, whether occurring in consequence of or in connection with it, is pelvic cellulitis. I have found it existing to a greater or less degree in at least one fourth of all the cases applying to me for

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relief; and I trust that the members of the Society will pardon me if I urge upon their attention the great importance of recognizing early in the case the existence of, and the proper management of, pelvic inflammation, involving the pelvic peritoneum or the areolar tissue in the cavity of the pelvis; for, if badly managed, it often eventuates in destruction of the ovaries, and renders the woman a cripple and an invalid for life.

To those who have not given the matter special attention, the diagnosis of even a well marked case of laceration of the cervix is attended with difficulty, more especially if any form of cylindrical or valvular speculum be used, for any of these instruments press upon and displace the normal relation of the parts to a considerable degree.

The reason why this lesion was not recognized long ago is, that the torn portion of the cervix, with the prolapsed and swollen mucous membrane of the cervical canal, becomes flattened against the posterior vaginal wall, and when we make an examination with the speculum we simply see a flat granulated surface, covered with a tough muco-purulent secretion difficult of removal, and when removed leaving an eroded surface, bleeding upon the slightest touch. We have in fact before us that favorite and time honored disease, the so called "*ulceration of the womb*," but which in nineteen cases out of twenty, when occurring in women who have given birth to children, is simply a laceration. To demonstrate this is exceedingly easy. Place the woman upon her side and introduce a Sims speculum; retract the perineum so that the cervix comes into view; intrust the speculum to the nurse or assistant, and take a long handled fine pointed tinaculum in each hand; catch up the mucous membrane on the outer edge of the anterior and of the posterior lips of the cervix. Now make gentle traction, and you will find that the red and granulating surface will roll in out of sight, the apparent enlargement of the neck will in a great part disappear, and with the exception of a small crease upon either side you have almost a normal looking cervix. Now in tissue as dense as the uterus an extensive erosion could not be rolled in and made to disappear by the procedure just mentioned. When the laceration exists upon one side only, the diagnosis is more difficult, but with a little care, and the application of the same principles as already described, the facts can be made out and settled.

How shall we treat a case of laceration of the cervix? First, by a careful digital examination determine if there be any point of pelvic cellulitis. If so, confine the patient to bed for a week, or longer, if

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necessary, and have a large sized bed pan put under her night and morning, and a half gallon of water as hot as can be borne with comfort thrown into the vagina slowly, with a Davidson's syringe. If a point of tenderness can be found upon pressure over the abdomen, apply a blister four by five inches. If there is cystic disease puncture the cystis freely with a pistonry, and after the bleeding has ceased paint the diseased surface and the cavity of the canal freely with saturated tinct. iodine; repeat this every ten days until the cysts disappear and the surface begins to assume a healthy appearance. If the liver and bowels are torpid give a teaspoonful of carlsbad salt in a goblet of hot water every morning upon waking, and allow no food for one hour afterwards, continuing the salt for two weeks if necessary. When the tenderness in the pelvic tissues has disappeared the cysts in the cervix have been removed and the general condition been somewhat improved, the operation for the repair of the laceration should be performed. With the woman upon her side and the cervix exposed with a Sims speculum, all that portion of the diseased surface should be removed with curved scissors except a strip one third of an inch in width in the center of each side, which is to form the canal; by means of a slightly curved needle and a long handled needle holder a loop of strong silk is passed first through one flap and then the other, the loop then being used to draw into place silver wire by which the freshened surfaces of the flaps can be approximated by twisting the ends together. The wires are then cut off half an inch in length and bent over so as not to fret the vagina. The woman is lifted into bed and kept strictly in the horizontal position, a vaginal injection of warm carbolized water being used every night and morning; the bed pan being used also to relieve the bladder and bowels. The bowels should be moved by enema if necessary, every second day, and the ordinary diet allowed. The stitches can be removed on the seventh day, care being used so as not to disturb the union that has taken place. Chloroform or ether is not usually required, for the operation in not attended with much pain. I have found it necessary to use anesthetics but four times in the thirty operations I have performed in the past two years. Hemorrhage is not troublesome, if a vaginal injection of hot water is used just prior to the operation. Where the operation is properly performed, union usually takes place by the first intention, the enlargement of the uterus rapidly disappears, the leucorrhœ ceases, the backache is relieved, and the neuralgic and nervous symptoms are alleviated. With the correction of displacemets,

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and the attention to the general health that all these cases demand, the results are eminently satisfactory—the cure remains permanent.

In conclusion I shall take this occasion to express my thanks to Dr. Emmet for the flood of light that he has thrown upon this heretofore unmanageable disease: for I think that none can fully appreciate its great value except he who has endeavored faithfully for months and years, by means of caustics and astringents, to cure some unfortunate woman who is dragging out a miserable existence, and at last be compelled to admit that his efforts have been useless.

A CASE OF RETINAL HEMORRHAGE, CAUSED BY MALARIAL FEVER.

REPORTED BY WM. ELLERY BRIGGS, M. D., OF SACRAMENTO.

B., 29 years of age, suffering with trachoma and asthenopia, was sent to me by my colleague, Dr. Baldwin, about the middle of last January. Dr. B. had treated the man for a short time with the usual remedies for granular lids without much improvement to vision—the patient's sight not returning enough to enable him to attend to his work as a carpenter. Upon examination I found the lids slightly rough and their edges somewhat inflamed, not sufficiently so, however, to account for the loss of vision which he presented. Testing his vision I found it $\frac{20}{50}$, and not improved with glasses. He had not been able to read ordinary newspaper print for several weeks. The following history was elicited:

Patient had enjoyed good health from childhood with the exception of occasional attacks of chills and fever up to the latter part of September, 1879, from which time he suffered for three months with intermittent fever, being most of the time confined to his bed. About the second month of his illness he attempted to read the newspaper, but was unable to distinguish any of the letters. He had had only occasional and slight pain in his eyes and did not know of any serious trouble with them until he attempted to read. When he recovered from the fever his strength and general health returned, and he was prevented from going to work from the weakness of sight only.

Upon making an opthalmoscopic examination there were seen sev-

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eral grayish-white patches, with borders of darker color than the surrounding fundus. These patches were at various distances from the optic disc, along the courses of the vessels, more especially the arteries and at their bifurcations. Some of the lightest patches suggested the possibility of Bright's disease, but no trace of albumen could be found in the urine. The disc was only very slightly clouded, and its vessels were of normal size. The patches were evidently the result of retinal hemorrhages which were caused by the long continued and severe malarial fever.

The exact pathology of the disease is rather obscure. Authors differ as to its cause. Dr. Mackenzie attributing the hemorrhages to pigmentary obstruction, while Poncet thinks them due to blockading of the minute vessels by leucocytes. Some cases reported from tropical climates have gone on to neuro-retinitis, occasionally resulting in atrophy of the disc and blindness.

My patient was ordered syrup of the iodide of iron with iodide of potash internally, an astringent wash and nitrate of mercury ointment locally. He continued this treatment for three weeks. He rapidly improved, and at the expiration of this time he was able to return to his work, and said that he could again read the paper. Since his return to work I have not been able to make an examination of his eyes, and therefore have to take his statement in regard to the amount of improvement in vision.

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REPORT OF SPECIAL COMMITTEE ON HOSPITAL FOR COMSUMPTIVES.

BY F. W. HATCH, M. D.

MR. PRESIDENT, AND MEMBERS OF THE STATE MEDICAL SOCIETY: The undersigned committee of the State Medical Society, appointed at the last session to endeavor to procure the passage by the Legislature of an Act for the establishment of a State Hospital for Consumptives, respectfully report:

That, after consultation with a number of the members of the Senate and Assembly lately convened, it was deemed unadvisable to press the subject in the form of a bill for the immediate establishment of such an institution, inasmuch as the sentiment of the members seemed to be unprepared for present decisive action thereon, and because of the discordant views entertained as to what would be the most suiable location. It was foreseen that upon this latter subject local interests would come into conflict, and that the safety of the measure would be jeopardized.

It was considered, therefore, the better policy to procure the passage of a concurrent resolution requesting the Governor to appoint a committee to report to the next Legislature as to the necessity of the proposed hospital, "to determine a suitable location, to investigate the probable cost, and to devise a general scheme for the construction and management of such an institution." Such a resolution was prepared, and, together with a petition representing the supposed views of the Society, and giving a few of the reasons for its action, was introduced by the Hon. Mr. Hittell, one of the Senators from San Francisco. This resolution was actively advocated by Senators Rowell and Lampson in the Senate, and by Drs. Mathews and Brusie in the Assembly, and was adopted.

The designation of three members of the State Board of Health as the Committee of Investigation was made in conformity with the views of several friends of the measure in the Senate, by whom it was thought to be one of the legitimate duties of that Board, under

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that provision of the law which constitutes it an advisory Board for the Legislature in matters pertaining to the public health.

The resolution and petition are hereto appended.

Sacramento, April 17th, 1880. Respectfully submitted,

F. W. HATCH,
WASHINGTON AYER,
W. G. GIBBONS.

SENATE CONCURRENT RESOLUTION No. 25, RELATIVE TO APPOINTMENT OF THREE MEMBERS OF STATE BOARD OF HEALTH TO CONSIDER THE SUBJECT OF A HOSPITAL FOR CONSUMPTIVES.

Resolved, the Assembly concurring, That a committee of three members of the State Board of Health, to be designated by the Governor, be and are hereby appointed to consider the subject of a State Hospital for Consumptives, to determine a suitable locality, to investigate the probable cost, to devise a general scheme for the construction and management of such an institution, and to report the results of their investigations to the Legislature at its next session.

PETITION.

To the Honorable the Legislature of the State of California:

At a regular meeting of the State Medical Society held in the City of San Francisco, April 16th, 1879, the undersigned were appointed a committee to petition the Legislature to take action looking to the establishment of a "State Hospital for Consumptives."

California, as a State, occupies a somewhat peculiar and exceptional position. It invites immigration on account of its mineral resources, its vast agricultural advantages, the adaptation of its soil and climate to the cultivation, not only of the ordinary productions of the farm, but, in many sections, of tropical and semi-tropical fruits, while, at the same time, it has held out inducements to settlement based upon sanitary advantages of which few of the other States can boast. Hence, it has become the resort not only of the young and vigorous and those seeking to engage in active industrial or business pursuits, but of the weak and dependent, of invalids seeking to avail themselves of the benefits, real or imaginary, which the climate affords. A very large porportion of this latter class are sufferers from chronic pulmonary complaints, victims of consumption, whose coming has been encouraged and hastened by the laudatory and oftentimes injudicious accounts given of the special advantages of the climate by interested land owners or enthusiastic travelers. That some derive benefit from the change, and are apparently restored to health, is true; but the misfortune is that very many whose strength is already far spent, and who are sufferers from the advanced and generally incurable stages of disease, come only to reap disappointment and to die among strangers. It is, to a large extent, from this class, unable to work, without

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means or friends, that our hospitals are filled. How many such find their way to California, the public, it is believed, have but a faint conception.

In eleven hospitals reporting to the State Board of Health for 1878, there were, in a total of 1,884 patients admitted, 127 cases of consumption, or nearly 7 per cent. In San Francisco alone—1878–9—out of a total of admissions, amounting to 3,174 patients, 245 were due to consumption, or nearly 8 per cent; and John S. Hittell, Esq., in remarks upon this subject in its relation to San Francisco, has shown that, as a rule, "about three hundred consumptives, two hundred of them from other counties, are admitted annually into the County Hospital, and the expense to San Francisco of these two hundred phthisical patients from other parts of the State is perhaps $13,000 a year, enough to provide for six hundred patients of other classes, since the consumptives live longer and cost more on the average than the others."

The history of many of these invalids antecedent to admission to the hospital, we are commonly unable to trace, yet sufficient is known to warrant their classification with those to whom the remarks above made apply.

The question is, not so much as to the propriety of imposing upon a few counties the expense of caring for and supporting, often for many months, this increasing class of invalids, or of taxing a few for what, in the opinion of many citizens should, of right, be made a State charge. The argument upon which we rely is of a higher and more honorable character; it is above all considerations of dollars and cents; it looks only to the welfare of these unfortunate invalids; it is strictly a question of philanthropy—essentially humanitarian in its nature. It is to benefit the sick and suffering; to save life when this is possible; to place the invalid under such conditions of locality, climate, regimen, and general management as shall be most favorable to improvement in health, and, possibly, to ultimate recovery. Such conditions are not seldom found in our county hospitals. Observation has shown that certain sections of the State are more favorable to the consumptive than others; that certain conditions of climate, as soil, elevation, temperature, and humidity—that the adoption of certain habits and modes of living are, it might almost be said, essential to success in the treatment of consumption. Many of our county hospitals are not properly located to supply these advantages; some of the conditions just mentioned are wanting; some of them are unsuitably constructed; and not many have accommodations for the class of invalids under consideration, without doing injustice to others the proper subjects of their care. It is only in a State institution, eligibly located, suitably equipped, specially constructed, and adapted to the hygienic treatment of consumption, that the full benefit of our climate may be demonstrated. It is not impossible that such a demonstration, besides fulfilling all the obligations which the spirit of philanthrophy imposes, may, by its favorable result, be the means of attracting population, and thus amply repaying the cost expended.

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Under the existing circumstances, the State is losing in sanitary reputation. Should the measure rscommended be adopted, it cannot fail to gain.

Doubtless a considerable proportion of those who now find their way into our county hospitals and die there, would, if a proper place were provided for treatment, recover their health and become useful and profitable citizens. Many, not entirely destitute, would avail themselves of the advantages afforded by such an institution; many others, not able to perform hard labor, could be profitably employed in those outdoor exercises which would form an essential part of its hygienic management; and there is no reasonable doubt that it would eventually be almost, if not quite, self-sustaining.

Being fully persuaded of the expediency of the proposition embodied in this petition, and of the benefits which would result therefrom, not only to the unfortunate invalid, but to the reputation of the State, the undersigned respectfully submit the subject to the consideration of the Legislature.

Sacramento, February, 1880.

F. W. HATCH,
W. AYER,
W. P. GIBBONS,
Committee.

SUPPLEMENTARY REPORT ON HISTOLOGY AND MICROSCOPY.*

BY J. H. WYTHE, M. D.

SAN FRANCISCO, April 20th, 1880.

W. S. THORNE, M. D., CHAIRMAN ON HISTOLOGY, CALIFORNIA STATE MEDICAL SOCIETY—DEAR SIR: I am reminded by the approach of the annual meeting of the State Medical Society of your request to me to furnish some matter of interest in histology. The routine of my professional teaching in normal and pathological histology might, naturally enough, be supposed to be sufficient to furnish abundant material to answer such a request; yet practically, the past year has not been fertile in new discoveries in this field. Yet the year has not been unprogressive. A larger number of physicians in this State than ever before are using the microscope in their practice as a means of diagnosis. Year by year the conviction extends in the profession that a practical knowledge and use of this instrument is

*Inadvertently omitted from its proper place.

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indispensable. A considerable number of really good instruments—not mere toys—are now in use on this Western coast, and we are warranted to hope that they will be heard from ere long.

One matter I desire to bring through you to the notice of the microscopists in the State Society—the value of eosin staining in the preparation of pathological specimens. It is generally known that it is not sufficient to cut a thin piece from a tumor or other specimen and submit it to immediate microscopic examination. It is necessary to harden the tissue by saturation for several days in some chemical solution. Then it is usual, after making thin sections, to stain them in carmine or logwood solution, or in some of the anilin colors, so as to exhibit more satisfactorily the structural differences in the tissue. For this purpose the solution of eosin is eminently satisfactory. It is simply wonderful to observe a specimen so stained, and properly mounted, when placed under an inch (or higher) objective, and the incident light rendered oblique by the use of Wenham's paraboloid. Sections of epithelioma thus examined exhibit the infiltration of epithelial nests and cells through the rest of the tissues in a way that is perfectly marvelous. The morbid material receives the stain so differently from the normal structure that it refracts the light in a very different manner, and at once attracts the attention. Even a novice in pathology would be able to pronounce such a specimen abnormal. I do not know that I am first to call attention to eosin as a superior stain, but the quite satisfactory differentiation of the eosin-stained cells of epithelioma by the use of the paraboloid I think is quite new. I shall be glad to exhibit it to you or any of my medical friends at a suitable time.

Yours, Truly,

J. H. WYTHE, M. D.,

Prof. of Histology and Microscopy, Med. Col. of Pacific.

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REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION.

BY IRA E. OATMAN, M. D., OF SACRAMENTO, CHAIRMAN.

At the last annual meeting of this Society, a special committee was appointed "for the ensuing year, to consider the whole subject matter of laws regulating the practice of medicine; to whom was referred the report of Dr. Stout, on medical legislation." "The committee was also instructed to endeavor to secure the passage of a law restraining druggists, apothecaries, and chemists from prescribing or practicing medicine or surgery." In the appointing of this committee the chairman was ably supported by Drs. Henry Gibbons, Sr., of San Francisco, and G. A. Shurtleff, of Stockton. Your committee has the honor to submit the following report:

In regard to Dr. Stout's report, he recommends that the existing law be repealed; and submits a draft of a new Act to be passed, with many of the provisions of the present law, but with essential changes, viz: "That the State Board of Health, appointed by the Governor and confirmed by the Senate, shall be the only Board having power to grant licenses to practice the profession. And that said Board should have annual compensation. Also, that, in all cases of refusal or revocation of license, that the party may appeal to a tribunal composed of the Governor, Secretary of State, and the President of the Board of Regents of the University of the State of California." It is deemed inexpedient to repeal, unless the same Act shall enact a law regulating the practice of medicine in every respect superior to the law now in force. Should the State Board of Health have sole power to grant licenses to practice, the source of such Board and its licenses would be political, instead of professional, which might corrupt the whole scheme to the core. Such a provision in the law, as a portion of society and of legislators is erroneously educated, would necessitate the appointment of a mixed Board of Examiners, composed at least of regular physicians, homeopathists, and eclectics, forcing a relation at once unscientific, illegitimate, and highly impolitic. Should regular physicians refuse to serve on the Board with irregu-

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lars, the appointing power would be liable to compose the Board wholly of irregular practitioners—as has been done twice in Sacramento—a condition deplorable in proportion as the whole State is greater than that devoted city. In the estimation of the enlightened nations of Europe and most of the Atlantic States, it would reflect intensely upon the civilization and scientific advancement of the great golden State of the Pacific coast. Such official action is almost wholly unknown elsewhere. The votaries of irregular practice would probably be able to defeat, at the next session, any legislation forbidding a license to practice to the graduates of the homeopathic and the eclectic "*schools.*" To the author, however, the inspiration is not Utopian that the time is not many years distant when to secure a license all irregular practitioners will be compelled to have a diploma from a *regular college* in good standing, or pass a satisfactory examination before a regular Board.

The Examining Board should be paid a reasonable compensation for its services. The right of appeal should forever be held sacred, in all cases of refusal or revocation of license, which should be incorporated in the law. Not to the Governor and Secretary of State, etc.—political officials—but to the Medical Society by which the Examining Board was appointed. As well might lawyers and law students appeal to a Medical Board; or the clergy and theological students to a Board of lawyers for redress in case of unsatisfactory credentials or examination. The *instructions* given your committee in regard to the passage of a law forbidding druggists, apothecaries, and chemists practicing medicine or surgery have been duly considered in connection with the several bills introduced into both houses of the Legislature, with the amendments proposed thereto.

One bill, by Senator Hudson, provided that the "Clerk of any Superior Court" should examine credentials and give certificates to practice. Also, that persons not graduates or licentiates should have the right to go before the Board of Censors of any legally constituted medical college or society within or near the county in which they reside for examination. The Board should have power to grant a license, with the title of "*doctor*," etc. Also, to repeal the existing law. Another proposed to exempt from the provisions of the medical law all persons who had practiced medicine in the United States Army or Navy. Another provided for licensing specialists—"a person practicing as a midwife, obstetrician, aurist, oculist, or a specialist in any branch or department of medicine or surgery." Another, by Braun-

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hart, in regard to a per centum paid by the apothecary to the physician—the use of arbitrary signs in connection therewith—and the writing of all prescriptions in the English language. Pending the disposal of this bill, the author hereof received an attested copy of resolutions which passed the San Francisco County Medical Society on the twenty-seventh day of February, as follows, viz:

"*Resolved*, That we, the San Francisco County Medical Society, representing the regular medical profession, protest against the passage of this bill, as it is detrimental to the welfare of the sick, and to the usefulness of the physician; and derogatory to the honor and respectability of the medical profession."

Also, "that members of the Senate and Assembly be requested to oppose all such legislation, etc., with three cogent reasons in support thereof, or any legislation, at present, modifying or changing the present medical law."

On the 17th of February, the Sacramento Society for Medical Medical Improvement voted unanimously, that

"WHEREAS, It is publicly announced and published that a certain physician in San Francisco has been so recreant to the ethics of his high calling as to receive from an apothecary, by previous arrangement, attested by signals or cabalistic signs, a per cent on the price of his prescriptions; therefore,

"*Resolved*, That we *earnestly deprecate the practice* and deplore the condition of him who would thus disregard his self respect and personal honor, his relations to society and to his patrons, and thereby lay himself liable under the law for violating a plain provision of the *Code of Ethics*, adopted by the American Medical Association, and in force in this Society."

The writing of prescriptions in English is so obviously absurd and impolitic as to meet with the disfavor and opposition of both the above named societies, as well as of every right minded physician.

In one of the bills a section or amendment was designed to prevent druggists and apothecaries from practicing medicine or surgery without a license. This custom swells our bills of mortality, and calls loudly for legal restraint. It is alike unprofitable to the prescriber and the patient, and generally detrimental to the health interests of the latter or even dangerous to his life.

I will spare the Society the recital of other bills and amendments for obvious reasons. In response to the almost unanimous sentiments of the profession throughout the State, so far as ascertained, your committee decided to oppose any addition to, change in, or repeal of the existing law during the late session. Croppings were visible,

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however, not in the interest of the public or the profession, of changes in, and repeal of the medical law. Should any of these have been entertained by the Legislature, whose duties were unusually important and arduous, the whole subject of medical legislation would have been thrown open, and the existence of all valuable law regulating the practice of medicine might have been imperiled. The Senate contained three able medical gentlemen, *loyal to the core*, in the interests of science and the profession, and their relations to the public good. They were found to entertain precisely the views of your committee, and were all on the Senate Hospital Committee—Doctors Lampson, Rowell, and Pardee. Rowell being Chairman. To this committee the bills were referred. To their vigilance, ability, and influence we must attribute their success in the Senate in *defeating all medical legislation.* In the Assembly Doctors Mathews and Brusie were equally vigilant and successful. It is a just tribute to most of the members of both houses that they were true to the behests of science and the sanitary interests of their constituency.

Public sentiment is ripening in regard to the necessity for and the utility of such laws. "Delays" are not dangerous in this case—there seems to be "luck in leisure."

It was claimed by those who opposed a law "regulating the practicing medicine" that it legalized homeopathy and so called eclecticism, and gave them notoriety, etc. If the law made them more *notorious* than they were before, it has spent its force in that direction, and leaves them more distinctly *irregular.* The law rules out the lower order of charlatans of all pretensions, scores of whom have abandoned their impostures, or left the State. Society in future is to be encumbered only with those who are graduates of their dogmatical schools. The constitutionality of the existing medical law has been sustained by the Supreme Court of the State, and some of its provisions have been judicially enforced in San Francisco.

Efforts to enforce the law have failed in the interior. In the prosecution of a notorious charlatan in Sacramento, practicing as an oculist, without professional or legal license, the *jury* failed to find him guilty. Whether through ignorance or prejudice, the decision was contrary to plain provisions of law. The question in all prosecutions under the law is not as to the competency of the practitioner, but has he a license to practice? The utility of, and the necessity for laws regulating the practice of medicine, are appreciated slowly by the average American citizen, because the subject is comparatively

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new. Progress is more rapid recently, however, as evidenced by the fact that on this coast, where the subject was first revived, few persons now oppose such laws; whilst the older States are rapidly following our wholesome example. There is no reason why we should not accept the advanced positions so long held by the most enlightened nations of Europe. Great achievements for the public good, in all ages, have been secured by uncompromising devotion, unflinching action, and untiring perseverance. Whilst the public mind is ripening on the subject it is important to enforce the present law, and any action by this society to that end would be judicious, and in order. The law should be revised; it is ambiguous; it should also be amended. Druggists and apothecaries should be restrained from practicing medicine and surgery, without a license. In case of revocation or denial of license, the party should have the right of appeal to the State Society, appointing the Examining Board, whose decision should be final. If not already demanded, time and observation will necessitate and determine other amendments to the law.

A Special Committee should be appointed and a Standing Committee should be authorized in the By-Laws, on "Medical Legislation," to which questions pertaining thereto may be referred. It should be the duty of such committee, by any lawful and honorable means, to promote the passage of any law, or amendment thereto, approved and recommended by this Society; or to defeat the passage of any medical law, or amendment, not so approved and recommended. Also, to aid the State Board of Health, when necessary, in securing the passage of judicious *sanitary* laws in regard to State and municipal Boards of Health, hospitals and asylums, prisons, sewerage and drainage, nuisances, epidemics and endemics, or any other needful legislation.

Should this Society deem it expedient to have the law revised, or amended, or both, at the next session of the Legislature, the committee could prepare the bill and submit it to the members of this Society, by a printed circular, for their approval or amendment. With the responses from the local Societies and individual members, the committee could have an approved bill ready for the next session. Under the new Constitution the next session will be one, and the second session three years from the last. Should this Society decide to ask for no legislation until the second legislative session in future, it will have two annual sessions at which to consider the reports of committees on medical legislation.

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REPORT ON NECROLOGY.

To the Medical Society of the State of California—Gentlemen: The appointed chairman of your committee having resigned, and the remaining associates, after written invitation, having failed to contribute, the undersigned member of the committee, in order that so important a subject may not pass by default, has the honor herewith to report.

IN MEMORIAM.

As far as can be ascertained the Society in the year from April 17th, 1879, to April 17th, 1880, has happily sustained but few losses, but those few were the loss of men of eminence. The world never loses great men without that others come to the front to fill the vacated allotment of human honors, and thus is greatness ever reproductive. Should any names be omitted the very regretable circumstance may be corrected in time for the publication of the transactions of the Society.

Of these worthies arrived at the plenitude of age, crowned with the laurels of the victor's triumph, lovely in their gentleness, grand in their achievements, we may, confiding in the world's approbation, add, as a benediction to them all, the poet's emblematic thought:

"As Winter, sleeping on his bed of flowers,
Wears on his face a dream of Spring."

A President of our Society has "gone aloft" to enjoy his higher sphere of human evolution:

WILLIAM FITCH CHENEY,

Of Chico; born December 30th, 1831; died October 8th, 1879.

Dr. William Fitch Cheney was born December 30th, 1831, at Richmond, New York. When a small boy his parents moved to Canandaigua, New York, at which place he was raised and received his literary training. He is a graduate of one of the schools of that place. Mrs. Broyles did not know, as his diploma, etc., were destroyed by fire.

The doctor, after graduating, chose the profession of phar-

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macy, and in the Town of Canandaigua he entered upon the duties of this branch of the medicine. He was not engaged long when he met with an accident by receiving the fumes of some chemical into his eyes, that for months threatened their destruction, but they finally recovered, after which he was persuaded to study medicine. This he did in the office of his father, who was before him an honorable, intelligent, and conscientious physician. In due time the doctor attended lectures at the University Medical College of New York, and from which institution he graduated March, 1862. Soon after graduating he was appointed surgeon in the Federal army, serving in the commands of the Virginia campaign, which position he held until the war closed. After his discharge from the army he returned to Canandaigua, where he assumed the duties of his profession, and where he was soon engaged in a lucrative practice. The doctor came to California in the Spring of 1869, landing at San Francisco in March. He remained at San Francisco but a few days; went to Sacramento where he remained six weeks, at the end of this time he finally concluded to locate permanently in Chico, which he did, and where he resided during the remainder of his active life. The doctor was married October 11th, 1855, to Miss Francis Elizabeth Sheldon, of Troy, New York. He died October 8th, 1879. These details are contributed by Dr. G. W. Davis, of Chico.

Dr. Shurtleff, the Medical Director of the State Insane Asylum at Stockton, writes:

"Dr. W. Fitch Cheney was admitted into this Asylum March 9th, 1878, with that invariably fatal cerebral disease termed *general paresis*, of which he died October 8th, 1879. He was so much under the influence of the delusions peculiar to the disease—so completely and uniformly irrational and become so demented—while in the Asylum, that his life here was a blank unrelieved by a lucid moment."

Thus did the shadow of this dark, sad gloom eclipse the intellectual life of one of California's most distinguished physicians. When beyond the relief which his most devoted relatives and friends at Chico could render, his country for which he fought and tendered his life may well be proud to have given him his last home on earth. The State's representative, imbued with the highest sense of duty, always impressed with the love of his professional brothers, whose heart beats with warmest impulses, stood assiduously by his side to

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replace his nearest relatives. This is our cheering consolation—the halo surrounding the dark shadow which closed upon a brilliant life.

HUGH H. TOLAND,

Of San Francisco. Born ——, 1806. Died ——.

"Dr. Hugh H. Toland was born at Gilder Creek, Newbury District, North Carolina, in the year 1806, of Scotch-Irish parentage; his father and uncles having emigrated from the Town of Newton-Stewart, in the north of Ireland. He studied medicine at the Transylvania University, Kentucky, graduating in 1828. After practicing a year or two in his native district he went to Paris to pursue his studies, devoting attention mostly to surgery, under the instruction of Roux, Depuytren, and Lisfranc. While there the epidemic of Asiatic cholera of 1832 swept over the city, and he had an opportunity of witnessing that scourge in one of its severest visitations. Returning in 1833 he again settled to practice in Newbury, when an event occurred which, while it gives an insight into his character, changed the current of what might have been a far less eventful existence. Chancing to be in the drug store of his little town a man staggered in who was choking to death from quinsy. Fresh from the precepts of Trousreau, young Toland hastily produced instruments for the purpose of performing tracheotomy at once, but the other physicians present interposed, and while they were inveighing against so radical a proceeding the patient died in the chair. Shaking the dust from his feet he removed to Columbia, South Carolina, and there engaged himself as assistant to Dr. Wells, at a salary of $2,000 a year; and soon rose to the rank of one of the foremost physicians of that State. Then came the news of the discovery of gold in California, and catching the infection Dr. Toland resigned a lucrative practice and started across the plains, bringing with him a quartz mill complete; one of the first that reached this country. Arriving here he proceeded to Calaveras County, and became the owner of what is known as the Gwynn Mine, at Mokelumne Hill. But mining did not long prove to his taste and he sold out in 1853 to settle permanently in San Francisco, where, assiduously devoting himself to his profession, he soon attained unbounded popularity and advanced to fame and fortune. He died, as he wished to die, with his faculties intact, and in the performance of his duties up to the last; yet the suddenness of it was appalling. While returning from his morning rounds, he was smitten with cerebral apoplexy, and dropped lifeless a few minutes after entering the house."

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So quietly did the fates clip the thread of life! How dread the contrast with the fatality of the former decedent's long and dreary struggle!

To the *Western Lancet* we refer for fullest details, for there, as the journal which Professor Toland created and fostered; as the defender of the profession; the exponent of medical science on this coast; and the firm ally of the University of California, the mind may turn with confidence.

"Although not in the modern sense of the word a specialist, surgery was his favorite pursuit, and won for him his greatest triumphs."

The happy function of the obituary is, not to criticise, but to praise; not to condemn, but to extenuate; to elicit emulation; to offer a prestige to the future by exalting the noble deeds of the past; and then softly, with bended knee, to lay another flower at the foot of the honored catafalque. All the successful operations of Dr. Toland were doubtless worthy of his epoch, his opportunity, and his ability; but the grand achievement of the master mind and patriot heart was the college which he created with his own resources of thought, time, and means; and then donated to the State of his adoption through the University of California. This munificent "operation" transcends all others. Monuments of adamant will finally fade to dust, but his immortal stone will grow with each succeeding age, and yearly send forth recording minds to perpetuate its everlasting worth.

STEPHEN R. HARRIS,

Of San Francisco; born April , 1801; died April 27th, 1879; age 78 years.

Extract from the record of the Society of California Pioneers—S. R. Gerry, M. D., Chairman of the Committee:

"Dr. Harris was born in New York City in April, 1801, and was consequently at the time of his death, April 27th, 1879, seventy-eight years of age. His father, Isaac Harris, was a merchant, in New York; took an active part in the war of 1812; and was lost at sea on the vessel 'Governor Tompkins.' Dr. Harris graduated at Columbia College in letters, and in medicine at the College of Physicians and Surgeons, in New York City, having studied with Dr. Alexander H. Stevens. He commenced practice in New York, which was large and lucrative, being universally beloved for his benevolence, sympathy, and kindly feelings to all, whether rich or poor. He

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was for several years Health Commissioner, was appointed by Governor DeWitt Clinton, Surveyor (?) of the Ninth Artillery Regiment. He was selected by the Common Council of New York to attend in consultation and organize the Alms House Medical Department of that city; and in 1832 held the position of medical attendant of the first ward during a terrible prevalence of the Asiatic cholera, when his untiring devotion to the poor entitled him to the noble character of a public philanthropist and benefactor.

"He left New York City February 9th, 1849, for California; was detained in Panama over two months, during which time, while waiting for a San Francisco bound steamer, he was entirely engaged in attending gratuitously his sick fellow countrymen and others; six thousand of whom were on the Isthmus waiting passage. His generous conduct at this time was reported to the Masonic and Odd Fellows' Lodges, of which he was a member, who passed unanimously highly complimentary resolutions evincing their great regard for his generous conduct. He arrived on the first trip of the steamship 'Panama' to this port. On his arrival here he enjoyed a very handsome practice, and was at one time associated with the late Dr. H. M. Gray. He was elected Mayor of the City of San Francisco in the fall of 1851. He served one year. In 1853 he was elected Controller, and Coroner in 1857. He was also appointed by the Board of Health, Resident Physician of the City and County Alms House in 1873, but shortly thereafter resigned. He leaves a son, who is a merchant in the City of New York, and a brother and one daughter in San Francisco. His association with the Society of Pioneers was genial and generous as his general career, his services always being at the disposal of the Society. Practical and efficient, as well in the administration hall as in the social festivities of his boon companions, his humanitarianism in the one, like his agreeable manners in the other, secured the respect and affection of both. He was a member of the Corresponding Committee of 1854–5; President for 1855–6; Director for 1856–7; also for 1864–5, he fulfilled all these functions with ability and satisfaction to the Pioneer Society. Time fostered, age matured him, fulfilling an honorable and useful life until the wearied brain retired from duty. Surrounded with the kind and gentle care of Dr. Wilkins and his aids, and with all that assiduous and devoted friends could render, in the palatial Asylum of Napa, the vital spark was extinguished, and he rests from his labors in quiet sleep."

The pretensions of Dr. Harris in the field of surgery were modest, but his medical skill, attested and welcomed by thousands, but few would presume to question. In a word, his nature was of the kindliest, gentlest character. His ever

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ready smile was a beam of sunlight; by no means passionless, his forgiving nature suppressed the lightning of anger; his frown, fraught with peacefulness, echoed no thunder sound; but no friend of his will forget his persuasive smile—that charming smile, the luminous torch of the wise man, which, like the star of Bethlehem, guides him to all the heaven, to which all men aspire.

S. B. BRINKERHOFF,

Of Santa Barbara; born , 1823; died March 26th, 1879. Dr. Brinkerhoff, fifty-six years of age, and twenty-eight years resident of Santa Barbara, died of apoplexy very suddenly, at his residence. The statement of his demise is, that from the plenitude of health and the fullness of life's activity, revered in public, beloved at home, he passed with one quick bound from his existence, with scarce a warning, into the eternity of the future. Here, might much be said; but a pure life, ever in the front in the conflict of disease, being always prepared, is hourly forearmed.

Dr. Brinkerhoff was born in Auburn, New York; was a graduate of the Buffalo Medical University. He first located in Mansfield, winning for himself a place in the foremost ranks of medical associates. He was a resident of Santa Barbara for over twenty-eight years, and was one of the earliest of those who carried here the American idea of civilization and prosperity. He was a man of great public spirit and energy, just the character needed in a young community. He was identified with almost every enterprise for the benefit and improvement of the county and city. Hardly a public work or institution can be pointed to of which he was not one of the promoters.

The day was bleak and cold when his obsequies were performed, but nevertheless the people came into town from miles around to join the sorrowful procession. Early in the morning flags were raised at half mast on the Odd Fellows' building, on the Arlington and Morris House, and on Cook's building, and remained flying during the day. Trinity Church, where the sad rites were performed, was exquisitely decorated with evergreens and flowers, while the casket was bestrewed with floral offerings from nearly every garden in the city. The church was crowded at an early hour, and at half past two

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o'clock, when the procession arrived, not even a standing place could be found, and hundreds stood around on the outside. The casket was carried into the church and deposited in front of the chancel by the following pall bearers: Col. W. W. Hollister, H. H. More, Judge Huse, D. W. Thompson, Dr. C. M. Bates, F. W. Frost, and Captain Greenwell. The beautiful burial service of the Episcopal Church was read with great impressiveness by the Rev. Mr. Trew, after which the choir sang "Nearer my God to Thee." The large audience then filed out and the remains were followed to the cemetery by the largest procession Santa Barbara has ever seen. The line of carriages was fully half a mile long, and the procession contained nearly the whole population of the city. The services at the grave were very brief, and as the earth closed over all that was mortal of the kind old physician, there was many an eye that grew moist, and many a sigh of regret at his departure.

Refer to the Santa Barbara paper of March 26th, freely quoted from.

SAMUEL LANGDON,

Of Stockton; born , 1822; died , 1879–80.

Of Dr. Langdon we quote the beautiful expression of his fellow friend and coequal worker, Dr. Todd of Stockton:

"Samuel Langdon was born in Wilmington, North Carolina, in 1822, and received his medical education at the University of New York, graduating at that institution in 1843. He came to Stockton in 1849, and has continued to practice his profession here from that time until within a few days of his death. He was a man of great physical endurance, and of large professional experience; of close observation at the bedside, together with an acuteness of perception and sound judgment, which made him a skillful and safe practitioner. He enjoyed, in an eminent degree, the confidence of this community, which was exhibited by the persistence with which his many friends sought his counsels through years of declining health until almost the very hour of his death. In a profession famed for its abounding charity, he was pre-eminently the friend of the poor, a virtue that was and always will be abused by many who are not properly its fit objects."

Of the worthy representatives of California's pioneers in the medical professsion in this epoch of California's life, *four members* of this Society, men standing eminently "in the front," are recorded on the "retired list" from all earthly care.

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Thirty years of uninterrupted labor in one field of life's exhaustive energy! If fidelity ever won an honor; if ability ever earned a laurel; if sweet charity ever weaves a blessing; if learning, truth, and integrity are values worthier than massed up millions; if these are virtues which alone the possessor may wear away with him to the higher sphere of life beyond the grave, then are these the noble passports to that "bourne whence no traveler returns" of our lost friend and brother, Samuel Langdon.

We have been informed of the names of Dr. MARTIN BAKER, of Visalia; Dr. WILLIAM SHARP, of Jackson; too late to to obtain details. Very respectfully,

A. B. STOUT.

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Dr. I. E. Oatman, Treasurer, in account with California State Medical Society, Cr.

1879.			1879.		
April 16.....	To balance brought forward.....	$ 98 00	April 30	By cash per Dr. Tyrrell, Voucher No. 1.....	$590 55
April 30.....	To cash per Dr. Tyrrell—dues of members.....	720 00	July 23.....	By cash per Dr. Tyrrell, Voucher No. 2.....	34 02
July 23.....	To cash per Dr. Tyrrell—dues of members.....	135 00	July 23.....	By cash paid Crocker & Co., per Dr. Tyrrell, transactions	100 00
1880.			Aug. 1.....	By cash paid Crocker & Co. on transactions...	220 00
April 14.....	To cash per Dr. Tyrrell—dues of members.....	100 00	1880.		
April 14.....	To cash per Dr. Tyrrell—transactions.....	5 00			
April 14.....	To cash per R. B. Cole.....	19 00	April 14.....	By cash per Dr. Tyrrell, Voucher No. 3.....	78 40
		$1,077 00			$1,022 97
			April 19.....	By Balance.....	54 03
April 16,1880	To balance.....	$54 03			$1,077 00
Due	H. S. Crocker & Co., $106 48, see Voucher No. 3.				

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REPORT OF STATE BOARD OF MEDICAL EXAMINERS.

Gentlemen of the Medical Society of the State of California:

I herewith submit the report of the Treasurer of the Board of Medical Examiners:

Received of C. M. Bates, former Treasurer	$84 00	Disbursed as per vouchers	$140 00
Received of present Secretary	379 70	On hand	323 70
Total	$463 70	Total	$463 70

Respectfully submitted,

WASHINGTON AYER,
Treasurer of Board of Medical Examiners.

San Francisco, April 21st, 1880.

To the President and Members of the Medical Society of the State of California:

Your Board of Examiners desire to present, through their Secretary, the following report:

Since the last annual meeting of this Socity the Board has held 19 meetings; the number of duplicate certificates issued to parties who made affidavit to loss of the original, 6; number of certificates issued to correct clerical error in previous issue, 1; number of original certificates issued, 110; whole number of certificates issued, 117. Number of certificates revoked for unprofessional conduct, in accordance with the provisions of Section four of the amended medical law, 1; number of certificates refused in consequence of unprofessional conduct, in accordance with the provisions of the same section, 1; number of applications refused in consequence of insufficient credentials, in accordance with the provisions of Sections one and three of the amended medical law, 3; number of trials held to decide upon charges of unprofessional conduct, in accordance with the provisions of Section four of the amended laws, 2.

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RECEIPTS AND DISBURSEMENTS.

Received from previous Secretary.	$77 00	Returned to previous applicant on withdrawal of application	$5 00
Received from 6 applicants for duplicate certificates	6 00	Paid out to detectives and witnesses in prosecuting illegal practitioner	48 00
Received from 110 applicants for original certificates	550 00	Paid to attorneys Taylor and Haight, as per bill	80 00
Received for 1 original certificate previously issued, and advance charges	5 50	Paid to Secretary for services, per order of Board	100 00
Received as a fine for illegal application, in accordance with the provisions of Section three of amended law	5 00	Paid over to the Treasurer, as per vouchers	279 70
		Paid out for expenses of office, blank certificates, stationery, and sundries, as per vouchers	130 80
Total amount of money rec'd.	$643 50	Total amount paid out	$643 50

The Board has been laboring under the same incubus, during the early part of the year, which retarded and weighed down the actions of its predecessor, viz: the contest over the constitutionality of the Act creating the Board; and when the Court had rendered its second decision confirming its constitutionality the Legislature was in session, and a strenuous effort was being made by the enemies of the law to repeal it, or to practically nullify its provisions by unfriendly legislation. While we recognized the imperfections of the law, we deemed it an unpropitious moment to attempt any amendments, and therefore used our influence to maintain it as it stands, hoping that, when a little more time and experience shall have more fully demonstrated its faults and shortcomings, the "first law of nature" will induce some intelligent future Legislature to so amend it that its operations may be more satisfactory both to the public and to the profession.

This Board has faithfully endeavored to perform its *duties under the law as we find it.* That no grevious error should be perpetrated, our attorney was consulted on all important occasions.

Respectfully submitted.

R. H. PLUMMER, Secretary.

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CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Ordinary members—Every physician who shall properly satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualifications as prescribed, may become an ordinary member of this Society, and all those who may thereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location where there is a local medical society, and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

SEC. 5. Honorary members shall consist of such distinguished

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savants and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon a motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution, inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The seal of this Society shall always be kept by the Permanent Secretary.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be President, four Vice Presidents, one Permanent and two Assistant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be nominated by a committee of one member from each county represented, on the morning of the second day of the meeting, and be elected by ballot, except Permanent Secretary. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall reside in Sacramento, and shall authenticate the proceedings; give due notice of time of next meeting; shall serve as a member of Committee on Publication; shall preserve the archives and unpublished transactions of the Society; shall hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify

*The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "vigilance," is crowing out 1870, the year of reorganization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess under the direction of Minerva.

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members of committees of their appointment, and of the duties assigned them; and, in the absence of the Permanent Secretary, one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II of this Constitution, the Board of Censors shall recommend said applicants to the Society as suitable candidates for election.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following standing committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned, namely:

On Practical Medicine and Medical Literature.
On Surgery.
On Obstetrics.
On Medical Topography, Meteorology, Endemics, and Epidemics.
On Indigenous Botany and the Domestic Adulteration of Drugs.
On Public Hygiene and State Medicine.
On Histology and Microscopy.
On Mental Diseases and Medical Jurisprudence.
On Medical Education.
On Publication.
Of Arrangements.
On Prize Essays.

SEC. 2 The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and as far as

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can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities, and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psychological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to medical education and the reputable standing of the profession.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing, such of the proceedings, transactions, and memoirs of the Society, as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed

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of members residing in the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committee on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special report embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title, abstract or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communications may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation, shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION. 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Society; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investiga-

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tions by prizes and awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one half this number whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived of all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two thirds of the members in attendance.

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ORDER OF BUSINESS.

The following order of business is presented as a by-law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and, except temporarily suspended, shall be as follows:

I. Organization of the meeting.
II. Report of the Committee of Arragements on the credentials of members after the latter have registered their names and addresses, etc.
III. The calling of the roll.
IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
V. Reception of members by invitation.
VI. The reading and consideration of the stated annual reports from the standing committees.
VII. Reading and discussion of voluntary contributions.
VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the standing committees.
IX. Resolutions introducing new business, and instructions to the standing committees.
X. Unfinished and miscellaneous business.
XI. Reading of the minutes of the session about to conclude.
XII. Adjournment.

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AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this Society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, October 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April, as the time for holding the annual meeting of the Society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the Society to be held in Sacramento, leaving the choice of such place with each session of the Association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April.—[1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid arrears due by him.—[1874, April 21st.]

ARTICLE V, SECTION 14. That the standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of meeting.—[1874, April 21st.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership" to read "shall thereby become permanent members."—[1875, April 19th.]

ARTICLE III, SECTION 1. After the word "ballot" add "except Permanent Secretary."—[1877, April 18th.]

ARTICLE III, SECTION 4, After "them" add "this officer shall

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not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

ARTICLE II, SECTION 6. After the word "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

ARTICLE II, SECTION 4. A license from the Board of Examiners of this Society shall also be required of every candidate.—[1878, April 18th.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a committee of three be appointed by the Chair, to secure the passage of an amendment to the laws organizing the State Board of Health, to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, Oct. 20th.]

Resolved, That a committee be appointed by the Chair, to present to this Society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, Oct 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this Society.—[1871, Oct 12th.]

Resolved, As a sense of this Society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, Oct. 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized school, and of good standing; and that no voucher of a single member shall be considered sufficient evidence of his qualifications.—[1871, Oct. 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, Oct. 10th.]

Resolved, That the Committee on revision of the Constitution and By-Laws be instructed to introduce into the code a law requiring the reading of the minutes of each session at the conclusion of the same.—[1873, Oct. 10th.]

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Resolved, That a permanent Secretary be elected for the Society, who shall be paid for his services, and that an additional Assistant Secretary shall be appointed each year by the President at the place of the future meeting. The salary of the Permanent Secretary to be fixed by the vote of the Society.—[1873, Oct. 10th.]

Resolved, That the Permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the Chairman of the various standing committees hereafter present a synopsis of their several reports; the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the Society, and have the same published in the next volume of transactions.—[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this Society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the Society desirous of visiting any foreign medical association—[1874, April 10th.]

Resolved, That this Society recognize the diplomas of the Toland College, and places its graduates who are now members of this Society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of the Society are permanent members, and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of county or district societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.—[1875, April 19th.]

On motion it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the Society.—[1875, April 19th.]

Resolved, That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State; and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

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Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the American Medical Association, as well as the code adopted by this Society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the Society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health, all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this society appeal to all ministers of the gospel throughout the State, and urge them to use their influence in all proper and available ways, to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath*, applied to its individual members through ignorance to a great extent that the name was introduced by Hahnemann to give distinction to his homeopathic dogmas; therefore,

Resolved, That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice: the regular profession of medicine, knowing no sectarianism, in medicine, practicing no exclusive

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dogma, or in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured, or their lives prolonged.—[1879, April 16th.]

Resolved, That the Medical Society of the State of California, respectfully request the American Medical Association, at its next annual meeting, to memorialize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines, offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicines with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated.—[1879, April 17th.]

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STANDING COMMITTEES

OF THE STATE MEDICAL SOCIETY FOR 1880–81.

ON PRACTICAL MEDICINE—W. F. McNutt, Chairman; W. Ayer, C. G. Kenyon, San Francisco; C. L. Bard, Ventura; W. A. Russell, Visalia.

ON SURGERY—P. B. McD. Miller, Oroville, Chairman; R. A. McLean, E. B. Robertson, San Francisco; C. A. Ruggles, Stockton; C. K. Farley, Gilroy.

ON OBSTETRICS—H. Gibbons, Jr., Chairman, San Francisco; I. E. Oatman, Sacramento; B. Cory, San Jose; E. A. Stockton, Stockton; C. Cushing, San Francisco.

ON MEDICAL TOPOGRAPHY, ENDEMICS, AND EPIDEMICS—M. M. Chipman, San Francisco, Chairman; G. C. Smith, Cloverdale; Alemby Jump, Downieville; M. B. Pond, Napa; J. H. Carothers, Martinez.

ON INDIGENOUS BOTANY AND ADULTERATION OF DRUGS—Wm. P. Gibbons, Alameda, Chairman; F. Delmont, Ventura; M. Pietrzycki, Rio Vista; Thomas Ross, Woodland; H. W. Rucker, Merced.

ON MEDICAL EDUCATION—H. Worthington, Los Angeles, Chairman; Benjamin Shurtleff, Napa; T. A. Snider, Sacramento; J. T. Wells, San Francisco; E. S. Carr, Oakland.

ON PUBLIC HYGIENE AND STATE MEDICINE—F. W. Hatch, Sr., Sacramento, Chairman; J. F. Montgomery, Sacramento; M. S. McMahan, San Jose; H. A. Dubois, San Rafael; Robert Caldwell, San Jose.

ON MENTAL DISEASE AND MEDICAL JURISPRUDENCE—G. A. Shurtleff, Stockton, Chairman; E. T. Wilkins, F. L. Dozier, Napa; J. M. Briceland, Shasta; I. S. Titus, San Francisco.

ON HISTOLOGY AND MICROSCOPY—J. H. Wythe, Oakland, Chairman; C. N. Ellinwood, M. C. O'Toole, San Francisco; E. H. Woolsey, Oakland; F. W. Hatch, Jr., Napa.

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ON PRIZE ESSAYS—H. S. Orme, Los Angeles, Chairman; A. B. Caldwell, Marysville; H. Gibbons, Sr., C. M. Bates, San Francisco; W. S. Thorne, San Jose.

ON PUBLICATION—G. G. Tyrrell, Sacramento, Chairman; G. L. Simmons, W. R. Cluness, W. A. Briggs, F. W. Hatch, Sacramento.

ON GYNECOLOGY—R. Beverly Cole, San Francisco, Chairman; H. M. Fiske, Geo. Chismore, San Francisco; St. G. L. Hopkins, Oakland; W. A. Washington, Merced.

ON OPHTHALMOLOGY—A. M. Wilder, San Francisco, Chairman; E. A. Matson, Sonora; A. Barkan, N. J. Martinache, San Francisco; W. E. Briggs, Sacramento.

ON DISEASES OF WOMEN AND CHILDREN—C. Blake Brown, San Francisco, Chairman; O. O. Burgess, C. Annette Buckel, W. H. Mays, Kate N. Post, San Francisco.

ON NECROLOGY—J. B. Cox, San Jose, Chairman; A. B. Stout, B. R. Swan, B. D. Dean, San Francisco; E. H. Pardee, Oakland.

ON ARRANGEMENTS—C. G. Kenyon, Chairman; R. H. Plummer, T. B. DeWitt, J. F. Sullivan, C. P. Chesley.

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CATALOGUE OF OFFICERS AND MEMBERS

OF THE

Medical Society of the State of California.

PRESIDENTS AND VICE PRESIDENTS OF THE STATE MEDICAL SOCIETY.

1856.

SACRAMENTO.

President,

B. F. Keene_____El Dorado.

Vice Presidents,

E. S. Cooper_____San Francisco.
S. Langdon_____San Joaquin.
D. W. C. Rice_____Yuba.
R. K. Reid_____San Joaquin.
F. W. Hatch_____Sacramento.

1857.

SACRAMENTO.

President,

H. Gibbons_____San Francisco.

Vice Presidents,

R. H. McDaniels_____Yuba.
O. Harvey_____El Dorado.
A. J. Spencer_____Santa Clara.
R. B. Ellis_____Sacramento.
A. B. Stout_____San Francisco.

1858.

SAN FRANCISCO.

President,

A. B. Stout_____San Francisco.

Vice Presidents,

J. P. Whitney_____San Francisco.
C. N. Ege_____Yuba.
A. J. Spencer_____San Jose.
I. E. Oatman_____Sacramento.
J. Morrison_____San Francisco.

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1859.

SACRAMENTO.

President,

R. B. Ellis.....San Francisco.

Vice Presidents,

J. F. McLane.....Yuba.
H. W. Harkness.....Sacramento.
O. Harvey.....El Dorado.
W. G. Deal.....Alameda.
J. F. Montgomery.....Sacramento.

1860.

President,

Isaac Rowell.....San Francisco.

Vice Presidents,

Isaac S. Titus.....El Dorado.
C. A. Kirkpatrick.....Solano.
R. B. Cole.....San Francisco.
Ira E. Oatman.....Sacramento.

Corresponding Secretary,

*E. S. Cooper.....San Francisco.

Recording Secretaries,

G. Taylor.....Sacramento.
G. L. Simmons.....Sacramento.

Treasurer,

H. W. Harkness.....Sacramento.

1861.

President,

Samuel F. Hamm.....El Dorado.

Vice Presidents,

B. H. Pierson.....Sacramento.
G. L. Simmons.....Sacramento.
C. A. Kirkpatrick.....Solano.
B. A. Sheldon.....San Francisco.
J. G. Tucker.....San Francisco.

Corresponding Secretary,

E. S. Cooper.....San Francisco.

*Dr. Cooper was also elected one of the Vice Presidents, but declined—preferring the position of Corresponding Secretary.

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Recording Secretaries,

G. Taylor_____Sacramento.
Isaac S. Titus_____El Dorado.

Treasurer,

H. W. Harkness_____Sacramento.

1870.

SAN FRANCISCO.

[Reorganization of State Medical Society.]

President,

T. M. Logan_____Sacramento.

Vice Presidents,

S. R. Harris_____San Francisco.
T. H. Pinkerton_____Alameda.
J. L. Ord_____Santa Barbara.
G. A. Shurtleff_____San Joaquin.
D. B. Hoffman_____San Diego.

1871.

SACRAMENTO.

President,

H. Gibbons, Sr_____San Francisco.

Vice Presidents,

G. A. Shurtleff_____San Joaquin.
F. W. Hatch_____Sacramento.
F. W. Todd_____San Joaquin.
J. F. Montgomery_____Sacramento.

1872.

OAKLAND.

President,

G. A. Shurtleff_____San Joaquin.

Vice Presidents,

T. H. Pinkerton_____Alameda.
J. J. Franklin_____Sonora.
W. F. Cheney_____Butte.
W. F. Hays_____San Luis Obispo.

1873.

SACRAMENTO.

President,

T. H. Pinkerton_____Alameda.

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Vice Presidents,

J. M. Brown.....Solano.
C. A. Kirkpatrick.....San Mateo.
F. W. Hatch.....Sacramento.
H. M. Briggs.....Santa Barbara.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

1874–5.

SAN FRANCISCO.

President,

J. M. Brown, U. S. N.....Solano.

Vice Presidents,

A. B. Nixon.....Sacramento.
W. F. Cheney.....Butte.
Martin Baker.....Tulare.
R. K. Reid.....San Joaquin.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1875–6.

SAN FRANCISCO.

President,

A. B. Nixon.....Sacramento.

Vice Presidents,

W. F. Cheney.....Butte.
H. H. Toland.....San Francisco.
W. R. Cluness.....Sacramento.
H. S. Orme.....Los Angeles.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1876–7.

SAN FRANCISCO.

President,

Wm. Fitch Cheney.....Chico.

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Vice Presidents,

B. D. Dean_____San Francisco.
N. S. Hamlin_____Yuba City.
M. B. Pond_____Napa.
F. W. Todd_____Stockton.

Treasurer,

Ira E. Oatman_____Sacramento.

Permanent Secretary,

G. G. Tyrrell_____Sacramento.

1877–8.

SAN JOSE.

President,

Washington Ayer_____San Francisco.

Vice Presidents,

L. C. Lane_____San Francisco.
A. W. Saxe_____Santa Clara.
J. M. Briceland_____Shasta.
Thomas Ross_____Woodland.

Treasurer,

Ira E. Oatman_____Sacramento.

Permanent Secretary,

G. G. Tyrrell_____Sacramento.

1878–9.

SAN FRANCISCO.

President,

H. S. Orme_____Los Angeles.

Vice Presidents,

A. W. Saxe_____Santa Clara.
J. M. Briceland_____Shasta.
James Simpson_____San Francisco.
G. L. Simmons_____Sacramento.

Treasurer,

Ira E. Oatman_____Sacramento.

Permanent Secretary,

G. G. Tyrrell_____Sacramento.

1879–80.

SAN FRANCISCO.

President,

A. W. Saxe_____Santa Clara.

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Vice Presidents,

F. W. Todd_____Stockton.
J. M. Briceland_____Shasta.
C. G. Kenyon_____San Francisco.
W. A. Washington_____Merced.

Treasurer,

Ira E. Oatman_____Sacramento.

Permanent Secretary,

G. G. Tyrrell_____Sacramento.

1880–81.

President,

F. W. Todd_____Stockton.

Vice Presidents,

G. G. Tyrrell_____Sacramento.
G. W. Davis_____Chico.
A. H. Agard_____Oakland.
C. A. Kirkpatrick_____San Mateo.

Treasurer,

Ira E. Oatman_____Sacramento.

Permanent Secretary,

Wallace A. Briggs_____Sacramento.

Assistant Secretaries,

Thomas Ross_____Woodland.
C. G. Kenyon_____San Francisco.

Board of Censors,

O. O. Burgess_____San Francisco.
B. R. Swan_____San Francisco.
M. S. McMahan_____San Jose.
Wm. M. Lawler_____Oakland.
J. O. Hirchfelder_____San Francisco.

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ORDINARY MEMBERS.

[Those who have an obelisk (†) prefixed to their names are dead.]

Adams, J. S. ---------- Oakland.
Agard, A. H. ---------- Oakland.
Allen, C. H. ---------- Centerville.
Anthony, A. G. ---------- Oakland.
Ayer, W. ---------- San Francisco.
†Babcock, H. P. ---------- Oakland.
†Baker, Martin ---------- Visalia.
Baldwin, H. S. ---------- San Francisco.
Bamford, Wm. ---------- East Oakland.
Barber, E. T. ---------- Oakland.
Barkan, A. ---------- San Francisco.
Bates, C. B. ---------- Santa Barbara.
Bates, C. M. ---------- San Francisco.
Belinge, F. A. A. ---------- San Francisco.
Blake, C. E. ---------- San Francisco.
Blake, Jas. W. ---------- San Francisco.
Boushey, Julius ---------- Oakland.
Briceland, J. M. ---------- Shasta.
Briggs, H. H. ---------- San Francisco.
Brigham, C. B. ---------- San Francisco.
Briggs, Wm. Ellery ---------- Sacramento.
Briggs, Wallace A. ---------- Sacramento.
†Brinkerhoff, S. B. ---------- Santa Barbara.
Brown, C. Blake ---------- San Francisco.
Brown, J. M., U. S. N. ---------- Mare Island.
†Brown, James A. ---------- Sutter Creek.
Brown, Wm. M. ----------
Brownell, E. A. V. ---------- Oakland.
Bruner, W. H. ---------- San Francisco.
Buckel, C. Annette ---------- Oakland.
Bucknall, G. J. ---------- San Francisco.
Bucknell, M. E. ---------- San Francisco.

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Burdick, J. F.---Oakland.
Burgess, O. O.---San Francisco.
Cachot, M. A.---San Francisco.
Caldwell, A. B.---Marysville.
†Caldwell, A. B.---Santa Clara.
Caldwell, Robert---San Jose.
†Campbell, S. D.---Suisun.
Carothers, J. H.---Martinez.
Carr, E. S.---Oakland.
†Chamberlain, P.---San Francisco.
†Chase, Geo. C.---Downieville.
†Cheney, William Fitch---Chico.
Chesley, C. P.---San Francisco.
Chipman, M. M.---San Jose.
Chismore, George---San Francisco.
Clark, Asa---Stockton.
Clark, J. H.---Azusa.
Clark, B. F.---Chico.
Cluness, W. R.---Sacramento.
Cochrane, A. H.---San Jose.
Cole, R. Beverly---San Francisco.
Coleman, F. W.---Napa.
Cory, Benjamin---San Jose.
Cox, J. B.---San Jose.
†Crook, John T.---San Francisco.
Crumpton, H. J.---Lakeport.
Curless, Wm.---Truckee.
Curran, M. K.---San Francisco.
†Curtis, E. M.---Sacramento.
Cushing, Clinton---San Francisco.
Davis, G. W.---Chico.
Dean, Benjamin D.---San Francisco.
Delmont, F.---Ventura.
Dennis, S. W.---San Francisco.
DeWitt, Thos. B---San Francisco.
Dozier, Franklin L.---Napa.
Dubois, A. S.---San Leandro.
Durant, F. C.---Folsom.
Dutton, G. W.---Tomales.
Ellinwood, C. N.---San Francisco.

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Farley, C. K. ---------- Gilroy.
Fenn, C. M. ---------- San Diego.
Ferrer, H. ---------- San Francisco.
Fitzgibbon, G. J. ---------- San Francisco.
Fiske, Henry M ---------- San Francisco.
Fiske, H. W. ---------- Quincy.
Flint, Joseph ---------- Tehama.
Follingsbee, E. A. ---------- San Francisco.
Foley, W. L ---------- Oroville.
Foote, Erastus N. ---------- Lockford.
Foulkes, J. F. ---------- Oakland.
†Franklin, J. J. ---------- Sonora.
Freeman, G. M. ---------- San Francisco.
Gardner, Mathew ---------- Davisville.
†Gates, H. S. ---------- San Francisco.
Gibbons, Henry ---------- San Francisco.
Gibbons, Henry, Jr. ---------- San Francisco.
Gibbons, Wm. P. ---------- Alameda.
Grady, J. F. ---------- Weaverville.
Green, T. ---------- San Francisco.
Grisselle, Eliza ---------- San Francisco.
Grover, W. A. ---------- San Francisco.
Hamlin, N. S. ---------- Yuba City.
Hanson, Thomas C. ---------- Winnemucca.
Hardy, B. F. ---------- San Francisco.
†Harris, S. R. ---------- San Francisco.
Harvey, O. ---------- Galt.
†Harville, J. W. ---------- San Francisco.
Hatch, F. W. ---------- Sacramento.
Hatch, F. W., Jr. ---------- Napa.
Hewston, George ---------- San Francisco.
Hirschfelder, J. O. ---------- San Francisco.
Higgins, Alice ---------- Anaheim.
Hirtel, Augustus ---------- San Jose.
Hodgdon, W. H. A. ---------- San Francisco.
Holmes, Stillman ---------- Santa Cruz.
Hopkins, St. George L. ---------- Oakland.
Huber, David ---------- Gilroy.
Hunt, R. ---------- Nevada City.
Jackson, G. H. ---------- Woodland.

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Jenkins, T. J. ---------- Oroville.
Jones, William C. ---------- Grass Valley.
Jump, Alemby ---------- Downieville.
Keane, G. B. ---------- San Francisco.
Kelly, Thos. ---------- San Jose.
Kenyon, C. G. ---------- San Francisco.
Kesseler, A. ---------- Volcano.
Kier, H. M. ---------- Knight's Landing.
Kirkpatrick, C. A. ---------- Redwood City.
Laine, J. R. ---------- Sacramento.
Lane, L. C. ---------- San Francisco.
Lawlor, Wm. M. ---------- Oakland.
†Lasvignes, L. ---------- Forest City.
LeTourneux, T. J. ---------- San Francisco.
Lewitt, Wm. ---------- San Francisco.
†Logan, Thomas M. ---------- Sacramento.
Leffler, John ---------- Pacheco.
Lucas, W. T. ---------- Woodland.
Lusson, P. M. ---------- San Jose.
Markell, R. S. ---------- Cloverdale.
Martinache, N. J. ---------- San Francisco.
Martineaut, E. D. ---------- San Francisco.
Matson, E. A. ---------- Sonora.
Mays. W. H. ---------- San Francisco.
McLean, R. A. ---------- San Francisco.
McMahan, M. S. ---------- San Jose.
McMahan, John B. ---------- Oakland.
McNutt, W. F. ---------- San Francisco.
McQuesten, Chas. ---------- San Francisco.
Mead, E. S. ---------- San Jose.
Meares, J. L. ---------- San Francisco.
†Mehring, A. B. ---------- Visalia.
Miller, Chas. F. ---------- Hill's Ferry.
Miller, P. B. McD. ---------- Oroville.
†Millington, Jno. ---------- San Francisco.
Montgomery, J. F. ---------- Sacramento.
†Morse, Jno. F. ---------- San Francisco.
Murphy, James ---------- San Francisco.
Murphy, R. W. ---------- San Francisco.
Mussey, J. M. ---------- La Porte.

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Neal, H. ---------- Hollister.
Nelson, H. W. ---------- Sacramento.
Newmark, V. ---------- Benicia.
Nixon, A. B. ---------- Sacramento.
Oatman, Ira E. ---------- Sacramento.
O'Neill, A. A. ---------- San Francisco.
O'Toole, M. C. ---------- San Francisco.
Orme, H. S. ---------- Los Angeles.
Patty, L. W. ---------- Petaluma.
Pardee, E. H. ---------- Oakland.
Parramore, E. L. ---------- Woodland.
Paugh, W. J. ---------- San Francisco.
Pawlicki, L. ---------- San Francisco.
Payne, F. H. ---------- Berkeley.
Pelham, J. E. ---------- San Francisco.
Pietrzycki, M. ---------- Rio Vista.
Pike, H. G. ---------- Hopland.
Pinkerton, T. H. ---------- Oakland.
Plummer, R. H. ---------- San Francisco.
Powell, D. ---------- Marysville.
Powers, G. H. ---------- San Francisco.
Pond, M. B. ---------- Napa.
Post, Kate N. ---------- San Francisco.
Pratt, A. H. ---------- Dixon.
Regensberger, A. E. ---------- San Francisco.
Reinhart, M. ---------- Berkeley.
Reynold, G. E. ---------- San Francisco.
Reynolds, G. P. ---------- Alameda.
Robertson, E. B. ---------- San Francisco.
Robertson, H. D. ---------- Oakland.
Rodgers, L. O. ---------- San Francisco.
Rogers, S. J. S. ---------- Marysville.
Ross, Thos. ---------- Woodland.
Rowell, Chas. ---------- San Francisco.
Rucker, Hiram N. ---------- Merced.
Ruggles, Chas. A. ---------- Stockton.
Rupe, S. H. ---------- Healdsburg.
Russell, W. A. ---------- Visalia.
†Sage, C. T. ---------- San Francisco.
Sargent, Jacob L. ---------- Woodbridge.

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Saxe, A. W. ---------- Santa Clara.
Scott, John ---------- San Francisco.
Shafter, J. C. ---------- Olema.
†Sharp, Wm. ---------- Jackson.
Shuey, Sarah I ---------- Berkeley.
Shurtleff, Benjamin ---------- Napa.
Shurtleff, G. A. ---------- Stockton.
Simmons, G. L. ---------- Sacramento.
Simonton, W. B. ---------- Oakland.
Simpson, James ---------- San Francisco.
Smith, L. E. ---------- La Porte.
Smith, Q. C. ---------- Cloverdale.
Snider, T. A. ---------- Sacramento.
†Sproule, Samuel F. ---------- Chico.
Steele, Chas. H. ---------- San Francisco.
Stockton, E. A. ---------- Stockton.
Stone, E. P. ---------- Oakland.
Stout, A. B. ---------- San Francisco.
Stuart, Anabel McG. ---------- Santa Barbara.
Strong, A. ---------- Woodland.
Sullivan, James F. ---------- San Francisco.
Swan, Benj. R ---------- San Francisco.
†Thorndyke, A. ---------- Stockton.
Thorne, W. S. ---------- San Jose.
†Tilden, T. W. ---------- Chico.
Tood, T. M. ---------- Auburn.
Todd, F. W. ---------- Stockton.
†Toland, H. H. ---------- San Francisco.
Trembley, J. B. ---------- Oakland.
Twitchell, W. L. ---------- San Francisco.
Tyrrell, G. G. ---------- Sacramento.
Van Vlack, G. J. ---------- San Francisco.
†Van Wyck, John C. ---------- Oakland.
Wagner, John ---------- San Francisco.
Walker, D. ---------- Martinez.
Wanzer, L. M. F. ---------- San Francisco.
Washington, W. A. ---------- Merced.
†Wayman, W. G. ---------- San Francisco.
Wells, J. T. ---------- Bakersfield.
Wells, W. H. ---------- Dixon.

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Wheeler, P._____Oakland.
White, G. A._____Sacramento.
Whittell, A. P._____Mendocino.
Wilder, A. M._____San Francisco.
Wilkins, E. T._____Napa.
Williams, N._____Richland.
Woolsey, E. H._____Oakland.
Worthington, H._____Los Angeles.
†Wythe, W. T._____San Francisco.

HONORARY MEMBERS.

Joseph Hyrtle_____Vienna, Austria.
Charles A. Cameron_____Dublin, Ireland.
†Professor Louis Agassiz_____Massachusetts.
S. W. Thayer_____Vermont.
J. H. Wythe_____Oakland, Cal.
John Le Conte_____Oakland, Cal.
Joseph Le Conte_____Oakland, Cal.
A. Ames_____Boston, Mass.
S. M. Tibbitts_____San Francisco.
P. Landsdale_____United States Navy.
David Kindleberger_____United States Navy.
W. E. Taylor_____United States Navy.
S. F. Shaw_____United States Navy.
W. M. Nickerson_____United States Navy.
G. Farwell_____United States Navy.
C. McCormick_____United States Army.
R. Murray_____United States Army.
C. C. Keeney_____United States Army.
E. Bently_____United States Army.
F. Tallon_____United States Army.

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NOTE.—In alluding, on page 81, to the method prevailing in Paris of disposing of excremental matter, the facts were not stated with strict accuracy. The central cesspool spoken of is adopted only where an entire block belongs to one owner, which is sometimes the case when they are small; the general rule being that each owner of real estate has but one cesspool for all his possessions that lie contiguously or in one body; but where detached or scattered, or an owner is possessed of only a single parcel, it is required that there shall be on each lot or premise, a water tight cesspool, usually below the basement, in an effort to ventilate which a pipe is extended from it up through the building and out of its top.

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